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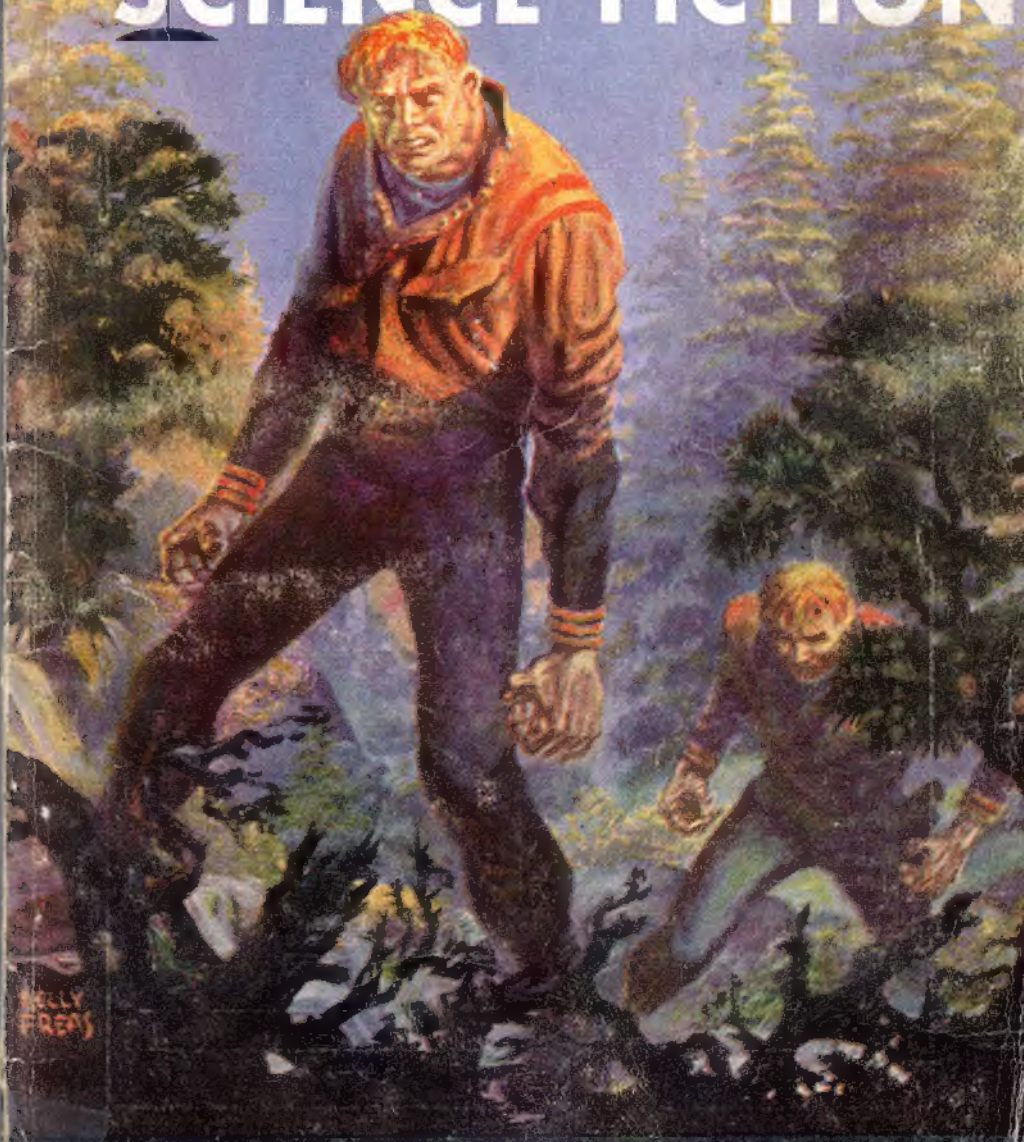

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FRONTIER NEWS

HEN I was in grammar school, there were no such things as "plastics." There were celluloid collar buttons, and celluloid toys and combs—but there was as of then, no need for a generic term like "plastics."

When I was in prep school, there were some new things called plastics . . . and chemistry was divided into two domains; Organic and Inorganic, and the division was based on the matter of carbon chemistry. Of course, a few decades earlier, the divisioning was based on the matter of substances-only-living-organisms - could - produce, and substances that could be synthesized from the elements. Thus calcium carbonate was inorganic, because it could be made by men from elements, but alcohol was organic because only living organisms could produce it.

Of course, by the time I was in prep school, that distinction had broken down; in freshman chem at M.I.T. I synthesized alcohol from calcium carbide, and it was well recognized that the difference between Organic and Inorganic chemistry was simply that the chemistry of carbon was uniquely complex, leading to a unique proliferation of structural differences in molecules based on it.

There were science-fiction suggestions, of course, that somewhat similiar relatively complex molecules based on silicon might be possible—but strictly science-fiction stuff.

During WWII the silicon plastics and the whole family of silicone complexes began to appear. Elastomers,

plastics, liquids, waxes—a whole wide assortment. They were developed because the carbon-carbon bonding, basic to all "organic" compounds, wasn't stable enough to resist the higher temperatures that were being encountered. The fluorinated hydrocarbons came into use first as refrigerants, where the extreme — in fact practically indestructible—stability of the carbon-fluorine bond made the substances nontoxic. You could drown a mouse in a fluorinated hydrocarbon, but you couldn't poison him; the molecule was too stable to interact with the animal's metabolic processes. Helium's nontoxic for a similar reason.

Of course, the Manhattan Project, forced to work with the viciously corrosive uranium hexafloride, led to the development of fluorine-proof materials — including plastic tubing, gaskets, and lubricants.

The development of the missile program has forced research into super-high-energy fuels; materials that would never have been considered previously, by reason of sheer expense of production, become comparatively cheap when you're up against the exponential effects of rocket fuel load. Every pound of fuel you lift has to be lifted by other pounds of fuel—and pounds of rocket vehicle, of course. It happens that boron undergoes some extremely energetic reactions; it would be wonderful stuff for rocket fuel . . . if it weren't a solid at all practicable, and some highly impracticable, temperatures.

That's forced the development of the boranes—the synthesis of stable hydroborons—and the study of boron complexes.

At about the same time, aircraft speeds were getting so high that it wasn't air resistance, in the pre-war sense, that was the major problem—with the fuels and engines available, air could be battered out of the way by sheer brute force. Air friction heating was the problem.

Sure—metals like titanium, which retains strength at high temperatures, could replace the durals and other light-metal alloys. Glass, discarded because it was fragile, came back because it was heat-resistant. But . . . what do you use for insulation on the electric wires required? How do you make a generator to supply the many kilowatts of power complex electronic gadgetry requires . . . when the air-friction is heating the equipment to a temperature where iron ceases to be ferromagnetic? The iron remains mechanically strong— but magnetically it's no longer much better than a hunk of rock.

What to use for the necessary flexible tubing, and gaskets, when temperatures reach into the dull-red-hot range? At that temperature, you know, glass becomes a fair-to-middling conductor—for a few seconds before it flashes into blue-white gas and evaporates, due to the resistance-heating of the current passing through it. The hotter it gets, the better it conducts, and the more the

(*Continued on page* 158)

THE.
NO THE
STOP

..LAW BREAKERS

BY CHRISTOPHER ANVIL

Illustrated by Freas

Their mission was sabotage — the destruction of critical installations. Their victims? Hah! Their victims were most eagerly awaiting their hoped-for coming ...

STAT yanked hard on the control bar, and slammed the antigrav pedal all the way to the floor.

A roar like that of a giant rocket grew loud below, shook the little scout ship with a tooth-rattling vibration, then dwindled into the distance.

Stat thrust the control bar forward, let up on the antigrav pedal, and—

"Look out!" shouted Vann. "Here comes another one!"

A huge silver aircraft with narrow swept-back wings grew large on the screen. Stat heaved back the control bar, and slammed down the antigrav. He glanced around in time to see a squat dark shape with stubby wings climb up on a pillar of fire, tilt, and streak past so close that he glimpsed the alien block letters that he couldn't read:

U. S. MAIL

"For the love of heaven," said Vann, "set us down!"

Stat glanced around. To the north was the huge building that was his landmark and eventual target. Around it, where he was supposed to land in "sparsely-settled farmland," a huge housing development was springing up.

On the screen, three needle-nosed aircraft with stubby wings and red-white-and-blue markings streaked in and out of view.

"Set down *where*?" said Stat. "Things have grown up since the maps were made."

"Set down *anywhere*!" said Vann. "Look out! *Here comes—*"

Stat took one glance, and thrust the control bar all the way forward. He yanked his foot from the antigrav pedal, and jammed the grav-assist almost through the floor. The ship plunged beneath him. The blood rushed to his head, and he saw through a reddish haze. There was a *whoosh* and a thunder overhead. A bell clanged. Stat jerked back the control bar, groped for the antigrav, pressed, and—

CRASH!

There was a dead silence. The ship sat still.

Vann got cautiously to his feet, and drew in a shaky breath. "Amen. We're down."

Stat looked around. "Yes, but where?"

"Never mind," said Vann, with feeling. "We're *down!*" He raised a hatch and leaned out.

Stat got up, and looked out over Vann's shoulder. They had landed in a thick evergreen forest, and the ship was strewn with small limbs, twigs, and bunches of green needles.

Stat ducked inside and glanced at several maps. He located a hilly, heavily-wooded portion, and decided it fitted in with his last hasty glance around before they came down.

Vann pulled back inside. "We're lucky those packs didn't blow up when we hit."

"Yeah, but we're not lucky about where we landed. We're too far from the target. If we start from here, we'll

have an awful time getting there."

Vann bent over the map, and Stat put his finger on the wooded portion near the bottom. The target was well to the north, near the top.

Vann said, "If we could only bomb "

"It's been tried This method is slow, but it ought to be sure."

Vann said nothing, and Stat, studying the map, thought back to the admiral's comments as he explained the mission to them.

"What I have to ask of you," the admiral had said, "is a hard and thankless job. A fighting man's duty requires him to kill others if his superiors give the order But these others should, for his own peace of mind, be plainly ill-disposed persons, vicious savages, or loathesome aliens. Blasting the brains out of a bloodthirsty monster with teeth like bayonets isn't likely to bother anyone's conscience.

"But, unfortunately, there are times when the thing to be destroyed is not unattractive, is not vicious or ill-disposed, and is not even particularly alien. This in the kind of job I am now forced to give you."

The admiral turned to the map, and rapped the blue and green planet centered there.

"This planet first came to our attention some four-hundred standard years ago, when our Controlled Expansion Program called for the settling of another planet. This planet had abundant natural resources, suitable gravity and atmosphere, and many other desirable characteristics.

"Scout Teams roughly mapped the planet by air, then our Initial Exploration Teams landed to make their raw materials surveys.

"As you know, whenever you land on a new planet, you have to be ready for trouble. If you follow all the carefully tested procedures in the Manual, you'll be safe nine hundred ninety-nine times out of a thousand. But there is always that one chance out of a thousand that the standard procedures don't cover. The thing to remember about this planet is that that one exceptional case turns up here very often.

"To begin with, the dominant life form on this planet is no carnivore or insect, but an erect biped that looks just like us. The only way to tell the difference is to get its shirt off and see if there are any auxiliary joints in its arms. If there's nothing but shoulder, elbow, and wrist, and if it can't disjoint these at will, then it is not one of us. It is a *human,* as it would call itself. It is, in other words, just like one of us with a bad case of arthritis

"And that's where the trouble starts.

"The humans are so much like us, in their appearance and their way of thinking, that our ancestors didn't follow the usual procedure. Instead of promptly exterminating this potentially dangerous life form, they called in the sociologists.

"The sociologists went down to the planet, came up goggle-eyed with their data, and ran up their projections. So far from being dangerous,

they said, the humans were dead certain to wipe themselves out within the next three-and-a-half centuries. There were quite a number of reasons.

"First, their population-growth was uncontrolled. Snath's Law states that an uncontrolled population will increase much too fast for its food supply, and therefore starve.

"Second, the humans weren't rationing their raw materials, and it looked as if they didn't intend to. Krick's Rule of Exhaustion states that, unless strictly rationed, natural resources get used up at an ever-increasing rate, and finally give out entirely.

"Third, the humans were split up in groups with different customs and languages. They were already tied in knots by Gark's Principle of Mutual Interchange. Put in small words, Gark's Principle says that if you can't see what the other fellow is driving at, he will irritate you, and sooner or later you will have a big fight.

"Well, the humans had all this against them, and more, too. Our ancestors didn't have the heart to make it worse yet for them. They were so much like us, and anyway, in a little while they would wipe themselves out, and we could have the planet with a clear conscience.

"That was four hundred years ago.

"Since then, the humans have starved, run into scarcities, and fought each other tooth and nail all over the globe. For lack of applying Snath's Law, Krick's Rule, and Gark's Principle, the humans went through torture.

"But—for what reason we don't know—they failed to exterminate themselves.

"When the rockets first started coming up out of the atmosphere down there, the Watch Team got a little worried. The sociologists went down, took another look around, and said this was the crisis. Snath, Krick, and Gark really had the humans by the throats and were knocking them senseless.

"A little while later, the humans burst out into our universe and got moving at a ferocious pace. What happened to Snath, Gark, and the rest of them, I don't know. The sociologists have all gone into their holes and won't come out to talk about it."

The admiral blew out his cheeks and loosened his collar. "That's what happened. Now the humans are roaring off in all directions setting up colonies. This has happened very fast. The Main Fleet is halfway around the system from here. As anyone acquainted with Bak's Theorem knows, nothing material can exceed the speed of light. By the time the Fleet gets here, the humans—who do not seem so restricted as we are by Bak's Theorem—will have their colonies well set up. The Fleet could settle this in short order, but you don't win wars with a force you can't bring to bear. Our only chance is to improvise, and somehow hamstring the human colonization program till the Fleet gets

here." He looked intently at Stat and Vann. "Do you understand?"

"Yes, sir," said Stat and Vann.

"Good. Now, the humans are much like us. We don't *want* to hurt them. But at this rate, they are going to crowd us right out of the universe. We've *got* to stop them. You see?"

"Yes, sir."

"Now, that planet is hard to scout. Mapping the important areas is like mapping erupting volcanoes. The features change too fast. And there are—difficulties." The admiral's gaze strayed toward a chart labeled "Accidental Deaths." He shook his head slightly, took a deep breath, and focused his eyes on Stat and Vann in turn.

"Nevertheless, I have excellent reason to believe the center of this web of colonization is"—he pulled down another map—"here in this huge building. It's just the size to house the mountains of files and armies of officials such a program would need. If we blow it up, it should disorganize the whole business."

The admiral went into minute details, and ended by saying, "We still, thank heaven, have the advantage of distorters, which the humans don't seem to have discovered yet. Your ship, and your packs containing the explosive, will be fitted with distorters of appropriate size and capacity. They will render you invisible to human eyes, but are synchronized so you will be able to see each other. This may seem to be an unbeatable advantage, but don't fool yourselves."

He glanced toward the chart labeled "Accidental Deaths," but looked quickly away. "Three times so far, I've sent men down to bomb that place. Each time, something's gone wrong. You never know exactly what is going to go wrong. Keep your eyes open. Be careful. On most planets, I could give you wise rules to guide your conduct. But on this place I will only say, good luck."

Stat heard again the admiral's warning to be careful as he and Vann looked at their present position on the scout ship's map. Stat said, "Much as I dislike to lift ship again, we need to get in closer. I'll try to stay low enough so we don't get knocked to pieces in the process."

Vann looked unhappy, but he closed the hatch.

Stat glanced at the screen, eased the control bar back, and pressed the antigrav.

Nothing happened.

Stat tried again. The ship didn't move.

Vann lifted up the cover of the floor well. Stat worked the controls with no result, frowned, and turned around. Vann was down on the floor, with one arm out of sight in the well. Stat got up and went over.

Vann looked up. "The control unit's sheared off."

Stat knelt down and reached in. He felt the loose control rods, groped around, and his hand came up against a thin sharp edge. He glanced

at Vann. "The base plate's snapped off close to the converter housing. There isn't enough left to do anything with."

They digested this in silence. The ship had two antigrav units, one overhead, and one down below. Theoretically, either one could replace the other. But this would involve disconnecting a great number of wires, tubes, hoses, bolts, and mechanical linkages, as well as wrestling the heavy converters out of their wells. For a moment, Stat considered turning the upper unit completely over Then he realized that even if it could be done, it would pass the narrow drive field right through the ship, and what would happen next was unpredictable

As by common consent, Stat and Vann got up at the same time. Stat bent to close the cover of the floor well. Vann went for the packs.

As Stat straightened up, Vann dragged out the first pack. It bulged, its flaps stretched wide to hold even more than the usual load. The carrying harness was of woven cloth straps, fitted with a multitude of steel snaps, hooks and buckles.

Vann's face had a sober look. He crouched, grunted, and stood the pack up on end. He studied it a moment. "One of us better go outside, so we can pass these things out without jarring them again."

Stat climbed through the hatch and helped Vann get the packs outside.

Vann was climbing out after them when there came a thud of rapidly passing hoofs. A white tail flashed through the trees not far away.

Vann said in relief, "Just a wild animal. Help me on with this thing."

"Wait a minute," Stat went inside, and brought out the map. He pointed to their present location. "Now, it's a long way from here to that Colonization Center But over here there's a highway that goes almost by it." Together, they crouched over the map, studying it. Carefully, they traced out the highway to make sure they made no mistake.

There was a crunching, snapping noise, and the sound of voices. Stat and Vann looked up sharply.

About fifty feet away, several pairs of boots came into view and stopped. Trousers of various shades of brown could be seen, and above that, through the trees, were flashes of bright red. The boots started to move and stopped again. Guns were now visible, thrust in various directions.

Stat jerked out his pistol. Vann did the same, then unclipped his holster, and slid it onto the pistol butt to form a rough stock that gave steadier aim.

From the direction of the boots and guns, there came angry voices, the words incomprehensible to Stat and Vann.

"We're going the wrong way, I tell you The car's back down the hill, behind us."

"If it was, we'd have struck it just now. The road runs right along the ravine."

"There's more than one ravine in

these woods. We hit the wrong one, that's all."

"I say we've got around on the wrong side of the mountain. At this rate, we'll waste all doe season trying to get home for lunch. The quickest thing from here is to go right up over the top and come down the other side. We're bound to strike the road."

"Man, are you out of your head? If we go to the top here, we land in the biggest windfall this side of Canada."

Arms shook and guns swung around. Stat and Vann eased back against the ship and separated. Soothing voices joined the angry ones. Eventually there was a silence, and gulping sounds. Something shiny landed at the base of a tree. The boots all turned around and tramped off downhill. Stat and Vann glanced at each other.

Stat said in a low voice, "I don't know what it was, but I'm glad it went away."

Vann nodded. "Me, too." He glanced around warily, and put his gun away.

Stat went off a little distance, studied map and compass, and came back.

Together, they pulled the packs away from the ship, and snapped on the distorters. The packs vanished. Stat helped Vann on with his pack. Vann vanished. Invisible hands helped Stat on with his pack, and then Stat could see Vann again.

"O. K.," said Stat. "Let's go."

They started out.

The mountain rose gently but steadily before them.

The first few minutes, the ground was fairly level. The packs, however, strained at the cloth straps, which wrinkled up and pulled so tight they felt like wire cables. The buckles dug in. The chest straps made it hard to breath. Then the steep uphill stretch started.

Several times, as they labored up the slope, there were shots, shouts, or the distant blasts of horns. They hardly heard them. Time was already stretching out in that process that lets a minute of pain seem to last forever

Stat was discovering that no bending or pitching would shift the pack so it would dig in somewhere else than at a tender spot in the small of his back.

When the ground finally leveled out underfoot, they didn't know what had happened. Vann caught hold of a tree trunk to steady himself.

"Look. It's light ahead."

"Yeah. Might be a clearing."

They pushed through some small, close-growing saplings, parted the branches, and looked out.

A wilderness of jumbled windthrown trees stretched out into the distance before them. The trees lay crisscrossed with trunks, limbs, and branches interlocked. The spaces between them bristled with thorny brush. About a third of the way out, there rose what looked like a wisp of smoke. This resolved itself into a host of flying insects, which ranged

all around, buzzing ill-temperedly.

Stat shut his eyes for a moment, and rested his weight against a nearby sapling. Vann groaned and swore.

The trees to either side made it impossible to tell for sure how far this spread out to right and left. But there was plainly only one thing to do.

Vann said, "We'll never get across that."

"I know. We'll have to go around."

For a long time, they picked their way around the edge of the windfall. In the distance, they could hear the high whine of ground-cars that came toward them, fell in pitch and faded away. Finally they had to stop for a rest. They struggled out of the packs, and shut off the distorters.

Vann lay down wearily and massaged his shoulders. After a long silence, he said, "We'll never make it at this rate."

Stat moved around carefully to try to ease his back. He glanced at some nearby saplings.

"What if we cut down a couple of those and strap the packs between them?"

Vann eased himself to a sitting position and looked at the trees. "Anything's worth trying."

Stat went to his pack, absently brushed off some insects crawling over it in a long column, and got out his survival kit hatchet. He and Vann chopped down two saplings, trimmed off the branches and sharp stubs, and strapped the packs in place.

Vann slapped at his leg and swore feebly. Stat brushed some crawling bugs out of his way, put the hatchet back in the pack, and turned on the distorters. The packs and poles vanished. Beneath them was a kind of sizable crater in the dirt.

Vann groaned. "They have *ants* on this planet."

Stat said wearily, "Maybe they aren't so bad here."

They groped for the poles, picked them up, and started off.

The trip was not a cheerful one. At intervals, there traveled down the invisible poles from the invisible packs, columns of invisible ants. These crawled off onto Stat and Vann, and went exploring.

Hot, tired, and miserable, the two invaders toiled their way through the forest, and down the hill through scrub trees and blackberry thickets, lurching and staggering under their invisible burden.

Twice, they had to take cover as shots tore through the brush around them. But there was so much shooting that they decided it must be a local affair having nothing to do with them. They were too tired to do anything, but merely got to their feet when the uproar died down.

About halfway to the highway, they passed within a hundred feet of a small group of humans in red coats, and never even saw them. The humans looked at Stat and Vann stumbling down the hill, and grinned knowingly. One of them gave a loud imitation hiccup as Stat and Vann staggered out of sight.

In due time, Stat and Vann came in view of the highway. They set down the poles, rubbed their shoulders and backs, and drew in deep breaths. Down below, long low shapes blurred past in a variety of bright colors.

"Pretty," said Stat.

"Yeah. But how do we stop them?"

Stat glanced around. There were a number of evergreens growing nearby. He selected two small pine trees. They cut them down.

"Now," said Stat, "we put the packs back on." He and Vann examined them carefully as they undid the poles. Vann said, "There shouldn't be too many left on them. I think about a hundred thousand came off my end of the poles."

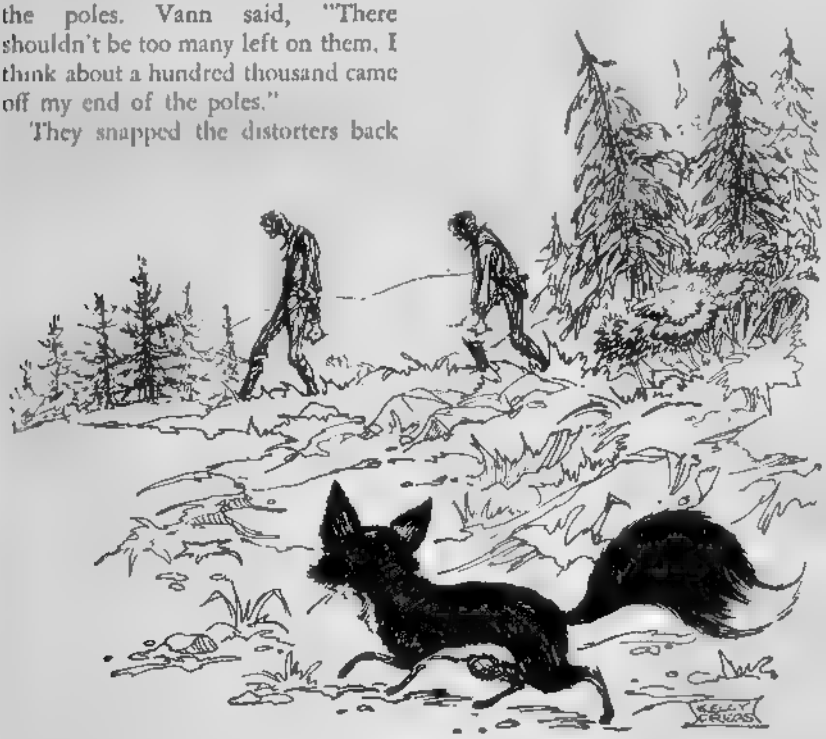
They snapped the distorters back on, and helped each other on with the packs.

A few minutes later, two small pine trees floated out over the moist soil at the base of the hill, leaving behind two intertangled tracks of footprints.

They struggled across a ditch up a bank to a wide dirt shoulder beside the highway.

Vann said, "Shall we throw the trees out on the road?"

"No. We might cause a wreck, and that's no good. What we want is a usable car, and a driver in the right frame of mind."



The two trees floated along beside the road.

Several ground cars of various sizes and shapes whizzed past in both directions. There came a high-pitched screech, and a long low car pulled off onto the shoulder in a great whirl of dust.

Stat held out his tree to Vann. "Can you carry this, too?"

"If I don't sink into the earth"

Stat glanced back to see that the road was clear, then stepped onto the hard surface and walked ahead fast.

The back of the car lit up brightly with red, then white, lights. It started to back, and Stat now saw that it was even more extreme than cars in recent photos the admiral had shown them. This one seemed to have barely room between it and the ground for a man to get his fist under it. Its top was around waist-high. A sort of periscope jutted up from the front of the top and was now swiveled directly back toward the two slowly-advancing trees.

A wing-shaped hatch in the left side of the car popped up and back. A hand appeared at the opening, and gripped the edge of the roof. A fierce grunting and puffing came from within.

Stat paused in alarm, and took another look at the car. What sort of creature, he asked himself, would fit into that kind of vehicle?

An elbow appeared above the edge of the roof. There was a repeated back-and-forth motion of wrist and elbow, coupled with hard grunting, then a red-faced figure of normal proportions levered itself up into view, and twisted around to stare at the two trees.

Stat stepped forward fast. The human turned his head sharply. Stat slowed so the human wouldn't hear his footsteps. The human frowned, and turned back to look at the trees. He blinked hard a number of times. With his gaze riveted on the trees, he shifted around to get a new perspective. He scowled, glanced down the road, and jumped off the car with a determined look. Stat hit him hard on the jaw.

Vann tossed the trees aside, glanced back at the road, and strode up as fast as his heavy pack would let him. Quickly, they carried the human out of sight at the base of the steep bank beside the road. They started eagerly back to the car, then involuntarily paused. They stared at the low rakish metal shape.

Vann said, "Do we lie down in there?"

Stat said, "Their cars seem to have developed some since the pictures we looked at."

Vann took a deep breath. "We'll have to try it."

"Lead the way."

"After you."

A severe struggle quickly showed that with all joints dislocated and moving freely, it was still not possible to get in through the hatch with the packs on.

They glanced around till there were few cars in sight, then Vann got out of his pack and crawled in head first. Stat handed in Vann's pack,

glanced around, got out of his own, and handed it in.

He looked up to see the low bushes swaying at the edge of the embankment. Hastily, he climbed inside, reached up, and pulled down the hatch.

"Now," said Vann, "how do we run this thing?"

Stat listened to a muted throb from somewhere forward. "Evidently the engine's running." He leaned back in the seat till he was almost flat on his back, adjusted the periscope, whose screen hung directly in front of his face, then looked around. There seemed to be a great number of knobs and buttons to choose from. He reached for a likely-looking knob and pulled it.

A mighty hum of power told him he had hit the right knob. "There," he said triumphantly. Unfortunately, the scene in the periscope did not change.

Vann said exasperatedly, "It's getting awfully hot in here."

Stat hastily pushed the button back in, and tried another. Music swelled out from in front, in back, and from all sides. A quick succession of punches at various controls brought the loud blast of a horn, dancers jogging back and forth on a television screen, a wave of cold like the inside of an asteroid, and a blinking red oblong spelling out some word in the human alphabet that he couldn't read:

BRAKE

There now came a loud hammering at the hatch, and a muffled roaring noise. An oppressive, foreboding impression of almost physical rage reached through the closed metal hatch.

Stat jabbed, punched, and pulled at every control in reach.

There was a *snap!* and the car rolled forward. Hasty experiments revealed that the direction of motion could be controlled by moving the wheel that sat in Stat's lap.

The car now began to pick up speed. Stat braced his feet against the floor, and guided it out onto the highway. Immediately there was a loud screech, followed by powerful blasts on a horn, and from the side came a ferocious sensation of overpowering fury.

Their car, however, continued to pick up speed, and soon left this behind it.

Stat heaved a sigh of relief.

"*Now* we're moving!"

Vann swallowed hard and said nothing.

The scenes in the periscope flashed by faster and faster. The traffic, most of which had been pulling away from them, now seemed to pause, then start flowing back toward them. A small needle on the dash in front of Stat crept steadily around its dial.

Stat braced both feet more firmly against the floor, and started to look around for some means of slowing the car down. He squinted at the knobs, switches, buttons, shiny rods and sliding levers. He had already tried most of them. But he couldn't

remember which ones. Just in case he had missed something, he tried again.

Music played. Scenes flashed on and off the screen. Hot and cold air poured into the car. The seat gently massaged his back. A jet of water splashed on the front lens of the periscope, and a flexible blade wiped it off again. The seat grew soft, then extremely firm. The car continued to pick up speed.

A whining drone rose from the power plant, and the car began a trembling, pitching motion. Part of the scenery that now flashed past was a long low black-and-white-striped vehicle with a red light atop its roof near the periscope. As they streaked past this vehicle, Stat saw it give a sort of startled spurt of acceleration. There was the whining howl of a siren, which rapidly dwindled away to nothing.

Ahead, a barrier of little glass-and-concrete houses stretched across the road. It rushed closer, and Stat just had time to see some incomprehensible symbols spelling out "TOLL 1.50," which meant nothing to him. He barely had time to select an empty lane, aim for it, and streak through frozen to the wheel.

The small needle in front of Stat was now traveling up past "140." Various lights were flashing on and off, but Stat could see no more buttons to try. He glanced back and forth from the periscope to the controls. He spotted what looked like some kind of control in front of Vann.

He took one hand from the wheel for an instant and pointed. "Try that!"

Vann pushed it. It went in and stayed in. The car continued to roar ahead. There was a click. It popped out again. Vann leaned forward and squinted at it. He pushed it in. It popped back out. He pushed it. It popped back. He frowned, then his face cleared. He pulled it. It came off in his hand. Suddenly he let out a yell.

A sort of red-hot rivet with a handle on it flew through the air. It landed in Stat's lap.

Stat brushed desperately, got it off onto the floor, twisted in the seat and jerked his feet back out of the way.

Vann said, "It worked! We're slowing down!"

Vann's voice held a relief that Stat couldn't share. The road seemed increasingly crowded with cars. A series of important-looking signs that he couldn't read flashed past:

CAUTION

AT YOUR OWN RISK

SLOW

ONE-WAY TRAFFIC

NARROW ROADS

15 MPH

Stat was driven to hairbreadth maneuvers to avoid the crowding cars. He glanced ahead and winced. Up ahead was a stretch of rough road. He had a vivid mental picture of the

narrow space beneath the bottom of the car.

The needle on its dial was now edging down past "60."

The rough stretch of road rushed toward them

"Brace yourself," said Stat.

Vann said, "That whine we heard a while ago is back again."

Stat suddenly remembered the black-and-white-striped vehicle with its red light.

The last stretch of smooth road went past and they hit the stony dirt. There was a jolt and a crash like a crate of loose metal hurled down from a height. The car bucked and slammed forward and back.

A cloud of dust swirled up and blotted out the view. All that could be seen was, every now and then, towering orange-painted machines that momentarily loomed into view, then vanished again.

The needle fell down the scale to "0."

Vann said shakily, "We've stopped."

Stat sucked in his breath and let it out again. "Don't touch anything."

"Don't worry," said Vann. He twisted around in his seat. "Let's get out. We can go the rest of the way on foot."

Stat took another deep breath. "I agree." He started to reach back for his pack.

A low wailing noise slid past the car and cut off. There was a snap and a bang of metal. Then there was the sound of heels crunching dirt

"Now what?" said Vann.

A blast of unprecedented rage came through the metal shell of the car, and left them feeling like dried leaves in a hurricane.

Carried along with his blast of fury, like wreckage afloat on a flood, came a jumble of mental pictures that lit up in Stat's mind like the glowing images on a television screen.

One of these mental images was of vertical bars set in solid concrete. The other was of some kind of heavy chair with metal clasps and electric cables running to a switch on the wall. Stat did not know what these were, but he got the impression they were things to be avoided.

There now came a bang on the hatch, and a number of sharp words, including, "Open up in there!"

Enough of the sense of this began to get through to Stat to give him the general picture.

There was a creak of metal, and the car tilted slightly, as if someone had forgotten his fingers under the edge of the hatch and was trying to pop it open.

Outside, other sirens whined past and came to a stop.

Vann's face set in a look of grim determination. He loosened his gun in his holster.

Stat's numbed mind began to function again. He whispered, "Don't use the gun. Pull that pack onto your chest and hang onto it tight."

Vann scowled, reached back, felt around with both hands, and tugged hard. Abruptly, he faded out of sight.

Stat heaved a sigh of relief, and

hauled his own pack over him.

There was a hard bang on the roof, and other voices outside:

". . . Seventy miles over the speed limit anyway, when he passed me."

"OPEN UP IN THERE!"

"Give me a look through that periscope."

"How do we get into these sardine cans, anyway?"

"DO YOU HEAR ME IN THERE?"

"Go get me that thin bar out of the trunk. We'll settle this bird in a hurry."

". . . . Can't see anything through this scope. He's got the whole roof opaqued, and on top of that, I think this job has an inside screen."

"OPEN UP!"

"O. K. Hand me that bar and shut your eyes for about two seconds."

There was a snap and a crash. Bright daylight shone in.

Stat, clinging to his pack with his eyes shut, felt a mental wave of astonishment wash over him.

Someone said, "Where's the transparency switch on these models? Edge of the hatch, isn't it?"

There was a click and a flood of light. Stat opened his eyes to see a crowd of men in uniforms squinting down through the now clear and transparent roof. The men outside glanced at each other blankly. One reached through, missed Stat by an inch, and extracted a set of keys. The faint throb of the engine cut off.

Stat heard the words, "This is one for the books."

"Couldn't be hiding somewhere in there, could he?"

"Where? Under the floor mat?"

"Let's open the trunk."

The crowd moved toward the rear.

Stat glanced at Vann. "Now or never."

Gingerly and with great pains, they worked themselves up through the hatch, clinging hard to the heavy packs. Only the energy of despair got them through, scraped and sprained.

One of the uniformed men looked up from the opened trunk lid.

"It doesn't seem to me we're causing all this jiggling around. Stand back a minute."

Vann jumped off onto the ground, and hit with a puff of dirt. The car lifted slightly.

Someone said, "Now, what made that?"

Gingerly, Stat and Vann tiptoed away.

One of the uniformed men followed right along behind them, staring at the dirt.

Ahead, a line of cars was bouncing along over the rocky road. Two or three were raised up high on their wheels, and one was apparently supported on an air blast, as it tipped and bobbed and blew out clouds of dust.

Stat, glancing around desperately for some way to get away from his own footprints, headed for this last car and its clouds of dust. He went through the dust cloud behind it, hoping he and Vann could get across before anyone could follow. The

next car, however, was fifty feet back, waiting for the dust to blow away. There was a blast on a whistle and it stopped.

Stat looked back and saw a small mob of uniformed figures coming rapidly along behind.

The packs had seemed heavy before, but never as heavy as this.

Vann said, "Look. Up ahead."

Stat glanced up, to see in the distance, beyond the place where the road work was being done, a valley dominated by a huge building set in a vast park of green grass and shrubs.

"That's it, all right," said Stat.

He looked back. The uniformed humans were spread out, examining the ground. One of them waved to the rest, and they all started directly toward Stat and Vann. Some of them spread out to the side and started to run. One turned around and headed back toward the parked cars.

Ahead, there was a steep bank, with a sparse woods of young second growth below it.

"Come on," said Stat. "If they catch us before we get off this dirt, we're finished."

He and Vann reached the bank about half a step ahead of a bunch of humans, and slid down. Two of the humans came right behind them. Stat put out a leg and tripped one of them. Vann hit the other over the head with his gun. Stat and Vann barely got into the woods as more humans came sliding down the bank.

Stat looked back, after he and Vann were well into the woods, and said, "For people who never saw a distorter in action before, they've got pretty fast reactions."

Vann took a deep breath. "Yeah." He set his pack against a tree. "Let's put these things on while we have time."

They stopped, and put on the packs, then peered through the trees to see if they could see the big building they'd seen from the road.

Stat said, "We can't see it from here, but if we go straight downhill, we're bound to come out somewhere near it."

They started out.

A long hike took them gradually away from the shouts of pursuing humans, and brought them in view of an enormous building set in a big green park, where large numbers of people walked or sat. Here and there, people took food out of containers, sat on benches, or spread cloths on the grass. Children tossed balls back and forth, and raced after each other in a variety of games.

Stat and Vann sank down wearily on the hillside above this.

Vann unfolded a diagram, and glanced back and forth from the paper to the building. He pointed at a blacktopped drive where occasional cars moved by.

"We plant the first charge under that culvert, on the other side of that road."

Stat followed Vann's gesture, and saw near the culvert a group of children toss a ball to a brown furry creature that caught it, and darted back and forth amongst them.

Vann squinted and glanced around. "The next charge, we set up around the other side, right next to the building. You see that narrow moving stairway?"

"Where all the people are riding up into the big doorway?"

"That's it. We'll have to put the second charge right against the building there. The detonator we can set up back on that hillside. It works on line-of-sight, and it can set off both charges from there."

A wave of childish laughter reached Stat, and he glanced down to see the furry creature wagging its tail. The children tossed the ball again, near the culvert.

Stat swallowed.

Vann said, "We can set the remote up somewhere beyond the brow of that hill. We'll have to keep our eyes open for any ditch or gully we can jump into." He studied the building with professional interest and added, "The air will really be full of flying junk when that place goes up."

The children ran back across Stat's field of view. "Yeah," he said. He glanced at the miniature bomb-and-fuse emblem on Vann's collar. He and Vann both wore the rocket and wings of Space-and-Air, but Vann was qualified in Bombs and Demolition, while Stat wore the head-thrust-into-the-jaws emblem of the Outplanet Scouts.

Vann struggled to his feet. "We'd better get started." He reached down to help Stat. Stat got up.

They started down the hill, and Stat now noticed the marked variation amongst humans. They appeared to be all shades of pink, brown, and copper. Their manner of dress varied from one group to another. The more he looked, the more variety he saw.

He glanced at the building, and saw across the face of it, in huge incomprehensible human letters:

UNITED WORLD

COLONIZATION

TEST

CENTER

12

They crossed the road between two cars, and located the big culvert, where a trickle of water flowed out into a winding stream bed. They wrestled in the big container of explosive from Vann's pack. Vann artfully ran a thin wire up a crack in the concrete and set a pale pink button at the base of the guard rail by the edge of the road near the culvert.

The happy shouts of children grew loud behind them. Stat glanced around.

The furry brown creature raced in and out with the ball amongst the darting children. Stat looked away.

Vann took out a tin of pinkish gum, and carefully stuck the button in place. He wrestled the explosive further into the culvert, got out a slender rod and snapped a small telescope on top of it. He sighted through the telescope, first one way, then another. "Just right. The humans couldn't have set it up better for us."

Stat said, "Will the water hurt the explosive?"

"Not a chance. The cover's waterproof."

The children now sank down on the ground, talking excitedly.

Vann glanced critically at his handiwork. "That stuff has some funny properties. You have to get the angle just right, or you waste half the effect. Well, let's set up the other one, and get out of here."

They climbed up the bank, and started toward the building.

Behind them, the furry animal climbed to its feet, and ran with its tongue hanging out toward the water.

Stat and Vann carefully threaded their way through groups of humans and their occasional furry friends. They had almost reached the place they were headed for when a small jet-black creature with green eyes and

vertical slit pupils trotted in front of them.

A burly human was striding toward them from the opposite direction. He stopped abruptly, and stared at the small black animal. He got out a big handkerchief and mopped his brow. He reached in his pocket and pulled out something that looked like a small white paw on a chain. He stroked it nervously, gripped it in one hand, and detoured warily around in front of the black creature, which had sat down to clean its fur.

Stat and Vann stopped dead still and stared at the animal. They looked at the grass the big human had carefully avoided. It *looked* all right. All the same—

Vann said, "You never know." They backtracked warily.

The black creature got up, stiffened, whirled around and streaked back in the direction it had come from. In the process, it passed in back of Stat and Vann, and blocked them in that direction.

Stat shut his eyes, and said in disgust, "Out the air lock with it. Come on."

"Wait a minute," said Vann. "What's *that?*"

The brown furry creature that had been playing with the children was snuffling along with its nose to the ground. It appeared to be headed straight toward them.

They paused to stare at it.

It came closer.

In the distance, the children had gotten up and were idly tossing the ball in the air, watching the furry creature.

Unerringly, it snuffled along the ground toward them.

Vann said nervously, "We'd better plant the rest of that explosive in a hurry."

"There won't be time."

Stat glanced around. There were various groups of humans around. The nearest seemed to be a group of strongly-built copper-colored humans by a tree. He said to Vann, "Listen, that thing is evidently a scent-tracker. If we mingle with those humans over there, we'll throw it off the track."

"A good idea."

At this moment, the animal looked up and sniffed the air. It came warily forward, casting its nose around in different directions, and sniffed strongly. Its eyes lit as if there were a small flame behind each one.

"Whuff!"

It came closer. It bared a set of big teeth, and let out a spine-tingling growl.

Vann had turned to go off with Stat. The animal was now practically on his heels. There was a snap of teeth and a fierce barking.

Heads turned around. The children started running over.

Vann whipped out his gun. The animal lunged forward with a snap of teeth. Vann hit it over the head. It got up again. Vann hit it again. It got up with a low growl. Again Vann hit it. It lay still, but it had a certain stubborn look that suggested it would not be still long.

Stat glanced around and saw a

number of humans staring in their direction. One or two started over. The children were running over fast. But Stat did not feel *really* alarmed till his glance took in the dark-haired, copper-colored group near the tree. They were all standing up. Their faces were perfectly blank and expressionless, but they nevertheless had a look of extreme alertness. They looked athletic and fast on their feet.

A large, exceptionally well-built member of the group now raised one hand and pointed directly at Stat's feet.

Stat felt paralyzed. He raised one foot and saw, where his foot had been, that the grass was flattened out. It began to straighten up slowly. Of course, with his foot there, he couldn't see the grass. But to the humans he was invisible, and they *could* see the grass.

Vann had now noticed this group of humans. He glanced down at the grass and up at the humans

Stat's thoughts were like water in a frozen stream. He struggled to clear his mind. He saw other groups of humans moving past on walks. Abruptly he came to life. "We've got to get onto a walk, where we won't leave any imprint."

At the same moment Stat and Vann started off, the whole bunch of humans started after them, their eyes intent on the grass.

Stat and Vann got onto a walk about two steps ahead of a tall sinewy human with a flinty look. They did their best to mingle with the humans moving along the walk, while not actually touching them. When they got close enough to the building, they stepped off the walk, placing their feet so as to take advantage of occasional rocks. Behind some evergreen shrubbery, they unloaded Stat's container of explosive, and put it close to the wall of the building. Vann ran his thin wire up the wall, and stuck the pink button below the molding of the window.

"That," said Vann, "should do it. Now, for the love of heaven, let's get out of this place."

They turned to go, and stopped in their tracks.

A crowd of men in uniform was coming across the park, their expressions watchful. In the lead was a big brown animal on a leash, its nose to the ground.

Stat said, "That one's bigger than the other one was."

"Yes, and it knows its business. Look at it travel."

The humans were having a hard time to keep up with it. It was headed straight for the spot where the other animal was now climbing to its feet.

Vann said, "We'll never outrun that thing." He reached for his gun. The animal vanished behind a group of humans

"Listen," said Stat, "if we fire from here, they'll be able to tell the direction of the sound. Let's confuse the trail, then get in the building with that bunch of humans and out the back."

"We can't. In that crowd, they'll press against us, feel us and not see us."

"We'll snap off the distorters first. There are so many different kinds of dress here, they'll never see the difference."

"All right."

They stepped out, located the approximate spot where they'd stepped off the walk, and walked back and forth along it to make the scent stronger in the direction they now intended to go. They unclipped their holsters, dropped them in the packs, moved in back of a group of humans starting up the steps, and snapped off their distorters.

They glanced back and saw several of the uniformed humans conferring with the alert coppery humans. The boys were stroking their animal, which was looking around with an ugly expression on its face. The other animal was somewhere out of their line of vision. Then the moving steps swept them up into the building, along with the humans.

They found themselves in a long narrow hall packed with humans and filled with an air of crackling expectancy. The people seemed eager to go forward, and had none of that dull enduring look common to lines of people being sifted through a classification center, Stat looked around for the folders of forms, cards, and authorizations the people must have. He could see none anywhere.

Vann said in a low voice, "The first official that stops us, I'll punch in the nose. You snap on your distorter while I've got their attention. Then you can tip over some files, knock over desks, punch a few of them in the teeth and trip them up. In the uproar, I'll have a chance to snap on my distorter. Then we can get out the back way."

"O. K." To prepare himself, Stat visualized what would be waiting for them up ahead. His own experience assured him there would be long lines of people moving past innumerable desks, with placards bearing cryptic symbols stuck on poles beside each of the desks. At each desk would be an official glancing over forms and swiveling his chair around to pull out file drawers. The people who had reached this far were bound to have acquired the dreary look of those whose fate is in the hands of others, and who can do nothing about it but submit in silence.

They were almost at the end of the entrance hall, and Stat felt ready for anything.

Vann said, "Here we go."

"I'm right with you."

They were swept out of the narrow entrance hall and the humans dispersed in all directions.

Stat and Vann stopped in confusion. There were no desks or officials in sight. They were in a large, warm, dimly-lighted corridor. From this corridor, other corridors branched out. Some were on the same level, others led gently up and some sloped down. Each had, beside its entrance, lighted brass plaques in unreadable human languages Directly before them stood

a statue with more words they couldn't read at the base:

BUILD SO THE RIGHT
IS NATURAL

Stat and Vann looked at the statue, then at the various branching halls.

Vann said, "This isn't exactly what I expected."

"Me either."

"Still, if we're going to get out the back, obviously we should go straight ahead."

They started up a corridor, chose one of several branches, followed it a distance, then paused. They had seen no sign of an exit, and not a single window to the outside

Vann took a deep breath. "Are you more tired, all of a sudden?"

"I didn't notice it before, but, yes, I am." Stat's feet felt heavy, and he paused to rest. Several groups of humans walked past. They all seemed to be rather short, stumpy types. They glanced at Stat and Vann curiously as they went by

A glass door up the hall came open, and a tall human came out, passed a big handkerchief across his forehead, and staggered down the hall. As he passed Stat and Vann, he glanced at them ruefully, and said, 'Not for me."

Stat couldn't understand the words, but some of the meaning came through in the human's tone of voice, and his rueful look.

Vann said, "The back of the building *must* be straight ahead. If we can get out there—" He started ahead, and Stat followed, wondering at his own weariness.

As Vann pulled open the door, Stat glanced up and saw more human lettering:

ULTRAHIGH GRAVITY

The door swung shut behind them.

Vann said, "I'm tired. I can scarcely lift my feet."

"I know it," said Stat. "So am I." He glanced around in puzzlement. His brain seemed to be full of fog. The atmosphere around him seemed to have thickened and grown dense. "Well," he heard himself say, in a dull voice, "we've been on the go since morning."

They moved slowly down the corridor. On either side, there were heavy doors, and beside the doors, miniature scenes behind glass. Stat looked at one of the scenes, and saw squat fur-clad humans making their way through a heavy snowstorm, guiding themselves by a rope stretched between two low buildings made of blocks of ice.

Vann said, "I don't see any windows ahead. Maybe in here—" He pulled open a door. There was a whistling roar, and white snowflakes whirled out in a blast of cold. Snow lay a foot deep inside the room.

Vann let go the door in a hurry and it rammed shut with a solid crunch. The snow on the corridor floor melted to little droplets of water.

Vann and Stat stared at each other.

"What kind of place is this?"

"I don't know."

"We've got to get out of here!"

They headed up the corridor.

Their feet got heavier and heavier. They sagged, braced themselves, stumbled forward bent over. Their minds went gray. An unbearable numb weight dragged at them, as if their skin were made of lead. They gradually forgot what they were doing, stumbled, fell, and crawled on grimly. The pressure grew into agony, and all they could remember to do was to move.

There was a sound of feet and human voices. Someone said kindly, "You guys have got guts, all right, but you're not being very practical. You're not built for this stuff. Here, Phil, give me a hand with them. Don't lift. Just help me head them around the other way."

"You suppose they're doing this on a dare?"

"No, some guys just set their minds on some nice-looking planet, and they're going there, and that's that. But they wouldn't last two weeks once they got there. Now they see what it's like, they'll pick something they're suited for."

Stat felt big strong hands take told under his arms. The world swung around him. He crawled grimly.

The pressure began to let up.

He and Vann staggered to their feet and looked at each other.

Without a word, they opened the glass door to the other section of the hall.

"Ye gods," said Vann, drawing in a shaky breath.

The door swung shut behind them.

They looked around, and tried another corridor. As they neared its end, they found themselves under a steadily increasing blaze of light that hit them like a blow from a hammer. Several dark-skinned humans kindly led them out while they were still on their feet.

Stat could feel his skin prickling all over. Vann had turned a rather bright pink. They looked around dully. Other corridors opened in various directions. Some were lettered, "DESERT - TYPE," "HUMID," "LOW OXYGEN." There was in the distance one lettered "CAFETERIA," and another further away labeled, "OUT." But Stat and Vann could not tell one from another. Suddenly Stat's gaze settled on one he hadn't noticed. The indecipherable block letters there spelled: "KEEP OUT." But right beside was another notice.

Stat took Vann by the arm and pointed. "Look there!"

In their own language was one word:

ENTER

They stared at this for a moment, then glanced around. The way they had come in was blocked with a steady stream of entering humanity. There were other corridors in all directions, but Stat and Vann looked at them with a total lack of enthusiasm. They glanced at each other, looked back at the corridor marked,

"ENTER," and went in cautiously.

This corridor was somewhat narrower than the others, and was dominated by three big pieces of statuary, one behind the other down the center of the hall.

The first one was of a brawny cave man with a skin wrapped around his waist. At his feet lay a powerful animal with long fangs, its skull bashed in. The cave man had one foot on the animal, and was gazing fondly at the stone axe that he held in his hands. Under the statue were the words, in Stat and Vann's tongue:

WHAT COULD BEAT THIS?

The next statue was of glass, shaped like a large barrel. The barrel was packed tight with large opaque spheres of all colors of the rainbow. The barrel's top cover bulged slightly. Below the barrel was the legend:

FULL

No sooner had Stat and Vann glanced at the legend and mentally agreed, than green-tinted water rose in the barrel. Fish swam freely in the spaces between the brightly-colored spheres. Small doors popped open in the sides of the spheres. Water plants drifted out. Little sea horses swam majestically past. Sand spilled from the bottom spheres to form a floor, and small creatures crawled through the sand.

Stat and Vann glanced at each other. Stat said, "We've been taken. There was no room for any more of those spheres. But the barrel wasn't *full*."

Vann said, "Do you get the impression someone thinks we maybe aren't too bright?"

Stat scowled back at the doorway they'd come in. It was still wide open.

"I don't know," said Stat. "Maybe they're trying to show us how they see things, and this is the quickest way to do it."

They looked at the last statue. It represented a road that wound several times around a mountain that grew steadily steeper. There was a long line of small human figures that stretched from a swamp at the base of the mountain and partway to its top. Something about the positions of these figures looked odd, and Stat and Vann bent to look at them. They both gave a little jump.

At the beginning of the line of figures, the second man in the row had his fingers around the first man's throat, and was plainly choking him to death. This second man was himself being clubbed over the head by another man. This man was stabbed by the next in line, who was in turn killed by a man with a stone axe. A sixth man thrust a spear into the axeman and was himself shot with an arrow. So it went in a long line up and around the mountain to a place where two horrified figures looked down on the rest and clasped hands. The faces of these two figures looked somehow familiar. Stat glanced from them to the others. The same two faces were repeated over and over again, back to the beginning.

Under the statue was the word, "VENGEANCE."

Vann straightened up slowly and glanced at Stat. "Maybe they aren't making fun of us, after all."

A door at the inner end of the hall opened up, and a white-haired, strongly-built human glanced out at them. For the first time, Stat and Vann noticed the gilt lettering above the door. It read, "Chief of Outplanet Immigration."

The human smiled at them. Speaking their own language, he said, "Won't you come in?"

Stat had, for an instant, the impression that his feet had grown roots into the floor. He could not move forward or back. Suddenly he remembered the admiral's words:

". . . The humans are much like us. We don't *want* to hurt them. But at this rate, they are going to crowd us right out of the universe. We've got to stop them."

Stat looked at the dignified human and felt no anger toward him. He felt respect, much as he felt for the admiral. But he reminded himself that he was a soldier with a job to do. He followed the human into the room with Vann right behind him. There was a window just across the room. He took one quick step forward as Vann shut the door. Then he stopped dead.

Half-a-dozen burly humans in khaki were standing against the wall. On their heads were helmets, and at their waists were wide belts holding big automatics in holsters. Every last one of these humans had a broad grin on his face.

Stat had an unpleasant tingling up and down his spine. Vann grunted, turned around again, and tried the door. It stayed shut.

Stat growled, "Distorters."

Simultaneously, he and Vann reached up over their shoulders and snapped them on.

At the same instant that they did this, the white-haired human banged his hand onto a button on the desk. There was a sliding noise. Stat had no idea where it came from, and didn't wait to find out. He sprang for the window.

Less than halfway there, he banged into an invisible wall. Dazed, he groped with his hands. A curved sheet of heavy glassy substance stretched from ceiling to floor.

Vann had his gun out, and took a shot at it. A small nick appeared. Stat got out his own gun and took a shot at the door. A bit of paint flicked off to reveal what looked like a tool steel surface underneath.

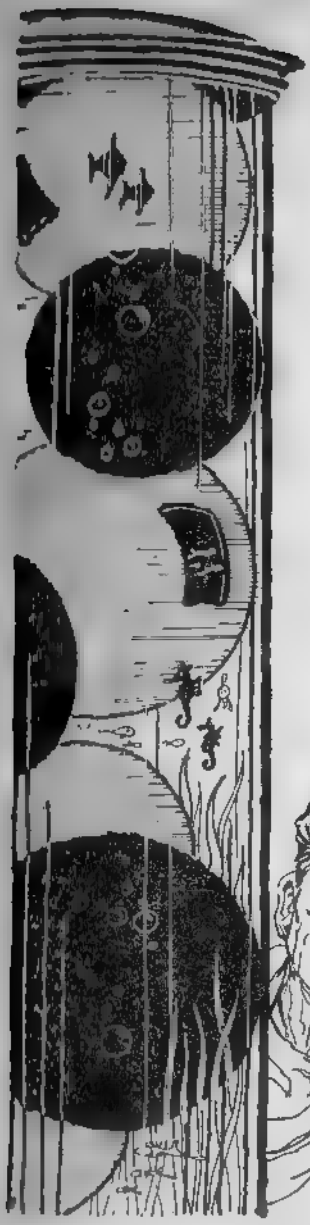
Vann swore.

Stat whirled around. The line of human soldiers had vanished. As he watched, one of them shaded into view, his hand at his belt, turning a dial on a little box.

Shortly afterward, another reappeared. The white-haired human at the desk appeared, going through a similar process. In a moment, all the humans were back in their places, smiling cheerfully.

Vann growled, "*Variable* distorters!"

Stat said grimly, "Keep a hand on your side of that glass plate. We're



in a box, but they have to get us out somehow."

Just then, a small nozzle in the ceiling overhead began to hiss.

Stat and Vann dizzily opened their eyes. They were seated in comfortable chairs before the desk of the white-haired human

Stat sat up. The last thing he remembered was that hissing nozzle. He looked around and saw no soldiers. Of course, they could be standing unseen along that wall right behind him with their hands on their belts. If so, no doubt, they were all grinning cheerful invisible grins. He slowly sat back.

Beside him, Vann spoke up, "We're prisoners?"

"No. You're immigrants."

"Immigrants?"

"Of course. You have to consider our customs in this matter." The white-haired man smiled in a friendly way. "As a hypothetical case, say that you came down here to blow up this building, thus murdering all the helpless women and children around it. Once word of that got around, public opinion might require that we boil you in hot lead for punishment. On the other hand, if you had merely decided to ditch your heavy explosive, in order to get into our new installations here and select a planet, then, obviously you are immigrants."

The white-haired human bridged his fingers and said with an air of regret, "Gentlemen, I am sorry to have to tell you that we unfortunately have no new openings available for you as yet on our colony planets. You will have to settle on Earth."

Stat blinked. "Here?"

The human nodded and pressed a switch on a box that sat in one corner of his desk, and leaned slightly forward. "Miss Dana, will you call the shop and ask Mr. Kakk to come up, please?"

A feminine voice came out of the box. "Yes, sir."

The human leaned back and looked at Stat and Vann in a friendly way. Stat analyzed the human's expression, and decided it was not exactly friendly. Or rather, it was friendly, plus another quality. He puzzled over this, and decided that the human looked like a man who has just completed a highly profitable business arrangement.

Stat said suddenly, "I don't understand this."

"Ask anything you want."

"You seem glad to see us."

"I am. We lose a great many potential immigrants through carelessness coming down through the airlanes, in traffic accidents, and so on. We're glad you made it."

"You *knew* we were coming down?

"Not you personally. We knew *someone* would be coming down."

"Then you know our plans?"

"We know the situation your superior officers are in. We deduce what we would do in a like situation, making full allowance for your lower level of technical knowledge. This gives us a good idea which one of the limited choices your superiors will decide to choose."

Stat sat back with a feeling of deep depression. "In other words, you see way ahead of us, because you're a superior race."

"No," said the human, sitting up straight. "Absolutely not."

Vann said, "You must be. In a short time you've surpassed us in practically everything."

The human frowned, "What you say may be true, but not in the way you mean it. We may be, compared to you at the present time, a superior *race*. But we've tested many of you who have come down here, and we consider your average intelligence to be about the same as ours. Moreover, the distribution of superior intelligence among your people follows

about the same curve as it does among ours."

Stat said, "That can't be. It's nice to try to spare our feelings; but in that case, there's no explanation."

"There is. The cave man who develops a stone axe may think he has the last word on weapons. His admiring tribe may agree. If, later on, some unknown in this same tribe tries to suggest something better, he will be shut up in no uncertain terms. Who is *he*? This pattern repeats itself over and over again in history. Hosts of men with superior ideas have been ground to powder by this simple mechanism. New ideas are not given a fair trial. Progress comes about *despite* this."

Stat thought of the lives of great men he had read. Some of them had certainly experienced this very thing. "Yes," he said grudgingly, "I suppose that's true."

"All right. Now, we've talked to your people who came down before. Tell me, what was it that led your sociologists to decide we wouldn't last?"

Stat named the admiral's two first reasons, then said, "And besides, you were split up into groups with different customs and languages. This made for all kinds of confusion and disagreements."

"Whereas," said the human, "*your* race was pretty nearly alike in language and customs?"

"Certainly."

"There's your answer," said the human. "Whoever is on top tends to get hidebound. Why change anything? The stone axe works. As likely as not, it will take the neighboring tribe to demonstrate the fact that spears are good for something. Now, humanity has been split up in quarreling groups for a long time. We have certainly suffered from this. But there were gains, too. As each group developed, a few great men fought their way to the top, built systems, and the systems hardened. Soon it came about that no one dared open his mouth against them *That* group became hidebound. But note this:

"All humanity never got hidebound together.

"Your race did. If, for instance, some scientist in your race put forth a hypothesis and it got generally accepted as a natural law, there was the end of the matter for a long, long time. In our race, there was still the chance that someone in some other group might take an irreverent look at this so-called 'natural law', or even not know it was supposed to be a natural law, and break it. Thus proving it was only a hypothesis after all."

Stat frowned, and thought about this. Behind him the door came open. The human glanced up, smiled, looked back at Stat and said, "It isn't always the *race* that's superior. It's the *method* the race uses." He got up, and said, "Mr Kakk, this is Mr. Stat, and Mr. Vann. Mr. Kakk will show you around and help you get acquainted with our ways of doing things, and hm-m-m—help place you in our scheme of things."

Vann said suddenly, "What's the

point of that glass barrel outside?"

The human said courteously, "Although our planet is crowded with *us*, there is room and opportunity for *you*."

"Oh," said Vann.

Stat and Vann followed Mr. Kakk into the hall. Vann stopped suddenly. "Wait a minute. How can that be?"

Stat was noticing the way Mr Kakk bent his arm as he shut the door. Stat said to him, "You're one of us? I mean, you're a . . . an immigrant, too?"

Kakk looked faintly offended. "I *was*," he said. "I'm a *citizen*, now."

"Um-m-m," said Stat. He began to wonder exactly how the admiral was going to stop these humans. They didn't kill their enemies; they converted them.

Kakk said, in a more friendly tone, "I hear you tried to blow the place up. I tried to bomb it." He shook his head. "There's some kind of shield up there, I suppose, to keep stray planes and missiles away. I hit the thing, slithered down it, and came to in a human hospital. Then the Air Police caught up with me." He opened a door leading into an empty shaft. "Step right in behind me. A wide-beam gravitic field will catch you."

Stat and Vann stepped off queasily after Kakk, and floated to the floor below.

"What," said Stat uneasily, "did the Air Police do to you?"

"Oh, they got me for a restricted airspace violation, and the judge sentenced me to two weeks working on the police machines. After that, I got a steady job here." He stepped out the shaft and pointed into a big, brightly-lit room.

"Lots of machinery in this building. Gravitors, heaters, air conditioners, generators. Something wrong with all of them. Plenty of work to do. Then there's a garage over there where the humans keep their cars. Want to see?"

"Well," said Stat dubiously, "we've already had a little experience—"

Vann said, "We'll *look* at them. But we won't get in."

Kakk led the way into a big room with bright overhead lights, air hoses dangling down at intervals, and cars standing around all over, some with their front ends jacked up in the air, others with all four wheels off the ground on gravity lifts, and a vast number with hoods up and blue-overalled mechanics practically out of sight within them.

Stat stared. "These are all out of order?"

"Every last one of them. There are more outside ready to go out of order any minute."

A vast weight of inferiority lifted from Stat's shoulders. "These humans can't be so smart after all."

"Oh," said Kakk, "they're smart enough, all right. That's where the trouble comes from. Instead of setting down with something nice and reliable, what do they do but keep making improvements in the things. Naturally, the improvements aren't

proven yet, so something goes wrong, and by the time they get that figured out, something else goes wrong, and then they're out with a brand-new improvement, and they have the whole thing to go through all over again."

Stat looked at all the raised hoods in undimmed amazement.

Vann said, "Not for me. There's trouble enough with that in space. When I set down on a planet, I want something reliable. Give me a nice coal-fired steamer any time."

Kakk said, "Well, these humans see it differently. There, isn't that a pitiful sight?"

A human in blue overalls raised his head and shoulders out of the engine compartment of a car. His face had a look of rage, and what he said, even in that unfamiliar tongue, was a fearful thing to hear. The human's hair hung down in his eyes, and he was smeared here and there with grease. His face set in a grim expression, he pulled a light on a long cord into a new position, and bent into the hood, banging his elbows and cursing steadily.

"You see they have only one joint in the middle of their arms," said Kakk, "and they can't dislocate *it* except by accident. That fellow is after the starting motor, I'd be willing to bet Pretty soon, he'll probably give up and try from underneath. But on *that* model—" Kakk shook his head and made a clucking noise.

Stat said, "Why do they build them like that?"

"Well, you see, they're after mechanical perfection. They make them low so they can go fast without turning over. But that squashes the engine down into that flat space. And, of course, they aren't satisfied with just an engine. They've got radio, television, air conditioning, heaters, massaging seats, power windows, power steering, power brakes —you've got to fit all that stuff in there somewhere. And if you think *these* jobs are bad, you should see the ones with the new antigrav drive. *Whew!*"

Vann made a choking noise. "How do they fix them?"

"There you see it right before you," said Kakk.

The grease-covered man in blue overalls rose from the engine compartment and looked around. He opened his mouth and shut it again. Clearly, he was past the point where words would do any good. He rolled a big jack over and slid it under the front of the car. He cranked the handle up and down and crawled underneath.

"They have," said Kakk, "the same problem on their spaceships. At the beginning, you can imagine, they tried to keep free of that. But now they're up to their ears in superfluous complications. They have little robots that crawl in to do some of the work; but, of course, *they* are complicated, too."

Stat and Vann looked thoughtfully at the feet thrust out from under the car.

Kakk said, "It happens that a great number of them *like* this work. Some

of them are unusually good at it. But things break down so often there aren't enough of them to go around. Let me tell you, there are plenty of jobs for people with the right qualifications."

A big, genial-looking man with "Manager" on his gray overalls came striding over. His eyes were focused hopefully on Stat and Vann. Kakk looked around, and the manager talked to him a few minutes, then glanced around, took out a cigar, stripped off its wrapper, and lit it with a judicious look.

Kakk said, "He wants a demonstration. Put your right hand up over your head and reach down across your back into your left side trousers pocket.

Stat did so. Vann did, too.

The manager's eyes lit up. He made an obvious effort to keep a poker face, and spoke briefly to Kakk. Kakk said, "He offers you one-fifty an hour and you learn on the job. You'd be foolish to take it. Insist on four, and maybe you'll get three. Once you learn, you'll get more."

Stat hesitated. All this had happened very fast. He still felt a firm loyalty to the admiral. On the other hand, the humans could easily have shot him. Instead, they were friendly, and were even willing to welcome him as one of their own.

Kakk said, "He offers you two-and-a-quarter. Hang on. I think he's worried."

Stat was now thinking that since the humans knew about the explosive, they had no doubt removed it. What could he do at best but kill a few humans who had never hurt him, and what good would that do anyone? Next, could he get the ship back to the admiral and tell him what he knew?

"He offers two-seventy-five," said Kakk. "I think that's his limit till you learn."

Stat grunted and looked away indifferently. He was wrestling with the problem of repairing the ship. The floor unit was sufficient for slow maneuver near the planet. But they would need both out in space. Worse yet, the admiral by that time would have given them up for dead, and changed the phase of his distorters, as a safety measure in case their ship had been captured. There would then be the problem of finding him.

But, thought Stat, suppose Vann and I *do* get back. Suppose by some miracle we don't blunder into another ship and wreck us both in the process. Next, I give the admiral this fantastic information. And suppose he even believes it. What good will that do?

The manager's face was undergoing a severe struggle. "Three-and-a-quarter," he said, as if the words were torn out of him with hooks. "But not a cent more!"

Kakk translated.

"O. K.," said Stat. In his mind, everything fell into place. He would work for the humans, giving them good value for their money. He would learn all he could from them.

He would try to find out the secrets of their progress, and apply them himself. And who knew what might happen? Meanwhile, he and Vann could make themselves a small, safe, self-propelled coal buggy in their spare time.

He was just deciding this when the manager, turning from Vann with a satisfied expression, looked at something back of Stat and Vann, stared, and slowly took his cigar out of his mouth.

Stat, his future still rosy in his mind, glanced around.

About half-a-dozen men in uniform were coming across the room behind a large sad-eyed animal with its nose to the floor.

"Ah-hah," said one of them, using the human tongue, and glancing at Stat and Vann triumphantly. "Here we are at last. Let's see your driver's license, and after that we want a peak at your registration. And you went through a toll booth without paying toll, did at least seventy miles over the speed limit, and resisted an officer." He whipped out a large pad and pencil, and from his self-contented look as he took another breath, he had hardly scratched the surface as yet.

Kakk translated gloomily.

The manager shook his head in disgust, threw down his cigar, and carefully ground it out. He walked away, then turned back.

"Remember," he said, "there's a job waiting for you when you get out. I offer three twenty-five to start. Remember that. Don't let those crooks keep you for less."

The uniformed human paused in mid-sentence at the word "crooks." He glanced up with an offended air.

The manager turned away. The uniformed humans grilled Stat and Vann, using Kakk for an interpreter. Kakk's face took on a stupefied look as he translated the long list of offenses. At length, they came to an end.

Stat looked at Kakk.

Kakk shook his head gloomily. "Before you get loose after doing all that, you'll repair every car they've got. And, oh boy, wait till you see them. Moreover, as I remember, they pay you about twelve cents an hour. A cent is one one-hundredth of a dollar."

The uniformed men looked at each other cheerfully, and spread out in a protective circle as they moved off with their valuable prisoners.

Vann glanced sourly at Stat.

Stat looked sourly back.

Vann said, "This reminds me of another eternal truth. They ought to make a statue of it and put it upstairs."

"What's that?"

Vann glared at the cheerful officers.

"In every worldly paradise, there's a snake."

THE END

UNSPECIALIST

A machine can be built to do any accurately described job better than any man. The superiority of a man is that he can do an unexpected, undescribed, and emergency job . . . provided he hasn't been especially trained to be a machine.

BY MURRAY F. YACO

BANNER ripped open his orders, read them, stared in disbelief for a quick moment, then cursed wildly while reaching for the telephone.

"Hello, Gatson? Yes, I got 'em. What kinda way to waste our time you lunkheads think . . . oh, it's you, colonel!"

Banner dropped the receiver and let it dangle. He sank into the only soft chair in the apartment and watched hypnotically as the phone's receiver limply coiled and uncoiled at the end of the wire.

Somebody knocked on, then opened the door. "Hi, pretty boy, you got our orders?"

"Come on in and hear about it," Banner said. He got up from the chair, ran his hands compulsively through his recently short-cropped red hair, hung up the phone and shoved the orders into his co-pilot's hands.

Harcraft read them over three times, then sank into the chair just vacated by Banner. Finally—while Banner poured them both a drink—he managed to blurt, "Potato fertilizer and tractor fuel— Oh, no. Oh, no, no, no!"

"Oh, yes, yes, yes," Banner said bitterly. "We are heroes of the spaceways; yes, indeed. We train for ten years. Acquire great skill in the art of the patrol. We dedicate ourselves to the protection of the Federation. We ready ourselves for war. We gird our young, strong loins, we—"

"You're getting hysterical," said Harcraft, who poured himself another drink, began pacing the floor and took up where Banner had left off. "We've never even been lost on patrol. And now they do this. It's unbelievable! Potato fertilizer and tractor fuel. We're supposed to travel thirty-six light-years, pick up one thousand sleds of the stuff, deliver it to some God-forsaken farm planet another thirty years out, and return to base. You know what they'll do

then?" He turned to Banner, pointed his finger accusingly and repeated, "You know what they'll do then?"

"How would I know," said Banner, glumly staring into his drink.

"Well, I can tell you what they'll do. Yes, sir, I can tell you." Harcraft's pudgy face and oversize brown eyes seemed to melt into each other, giving him the appearance of an angry, if not very bright, chimpanzee.

"O K., what'll they do?" Banner said.

"They'll give us medals. That's what they'll do. For safe delivery of one million tons of tractor fuel, you two fine specimens of manhood are hereby presented with the Order of the Oil. And for your courageous service in delivering two million tons of potato fertilizer, you are also awarded the shield of—"

"Never mind," Banner said. "It could be worse. They could've saddled us with a Bean Brain. Come on. Let's go to some bar and get sober. We're leaving for freight duty at 1700."

The Bean Brain met them at the air lock. "Name is Arnold. Here's my orders." Banner stared at Harcraft, Harcraft stared at Arnold.

"Get inside," said Banner.

The Bean Brain smiled, "Er . . . could you sort of lead the way? I've never been inside a ship before. If you got some kind of can, it would save a mess. I'll probably vomit a while."

They stopped calling him Bean Brain three days later. He was still sick, miserably spacesick, and neither Banner nor Harcraft had the heart to keep needling him. On the fourth day he managed to get up and around. They ate their first meal together that day. "Let's get something straight right off the bat," Banner said. "Neither Harcraft nor I got anything against you 'cept prejudice. That right, Harcraft?"

"Right," Harcraft said.

"In short," continued Banner, between puffs on a cigarette, "all we know is what we've heard."

"And that's not good," said Harcraft.

"Item one," said Banner, blowing smoke at the ceiling ventilator. "Patrol Command came up with the Bean Brain idea about six months ago. Patrol Command, in its infinite wisdom, has never seen fit to explain *why* Bean Brains are sometimes assigned, evidently at random, to small patrol vessels such as this. The orders always state that the 'passenger' will accompany pilot and co-pilot throughout the entire trip, will obey orders, yet is equal in rank to the ship's commanding officer. The Bean Brain has no duties aboard. This seems to make sense, at least, since Bean Brains aren't trained for anything and can't do anything."

"Item two," said Banner, taking his eyes off the ceiling and pointing a finger at Arnold. "I have, or had, two good friends—both patrol captains—who had the honor of taxiing Bean Brains around the universe.

One never came back. The other, Captain Slatkin, came back and got a big medal for reasons he'll never talk about."

"And Slatkin liked to brag," said Harcraft, knowingly.

Arnold stood up slowly. He was a small man, but as he looked up at the ship's pilot and co-pilot, he gave both the impression of height and strength. "I'll tell you something, too," he said, speaking slowly as if in pain. "I don't know why Bean Brains are assigned to ships like this either. I've never been told. I took the job because I didn't like what I was doing before. I've never had any real training, and this seemed like a chance to do something that sounded like fun.

"Like I said, I've never been told anything. They tested me for a lot of things, then gave me my orders and told me to come along. And if you're wondering, I flunked the ESP tests, so there's nothing there. You want to consider me dead weight? O K, your privilege. Leave me alone if you want to, I'll do the same. Be friendly, I'll be friendly. Ask me to help, I'll do my best."

Then he got up and went back to his bunk.

During the next six weeks, Arnold spent most of the time in his bunk, scanning tapes from the ship's micro-library on an overhead viewer. At meal times he was polite, offering no further information about himself, yet entering into any conversation that centered around such trivia as terrestrial sports, taxes, money, liquor, food, government agencies. By mutual, if silent, agreement, neither women nor work were discussed.

Working in the ship's control room, sometimes together, sometimes spelling each other, Banner and Harcraft speculated bitterly and endlessly about their passenger. Theories to explain his presence—most of them propounded by Harcraft—were created, torn apart, modified, exploded, in giant sequences of effort which left both men finally exhausted and tired of the whole business.

On the second day of the seventh week out, their ennui vanished. A ship was picked up by the spec-spanner, and at their delight at the break in routine, they summoned Arnold up to the cabin.

"Take a good look," said Banner, "it's an Ankorbadian ship. Probably the first and last you'll ever see." Arnold watched as Banner's finger tracked a slowly moving point of light across a recessed ceiling screen.

"Yes, sir," said Harcraft, "you are looking at the representatives of mankind's only sibling. The noble Ankorbades." Then he recited in a singsong voice:

"A simple race the Ankorbades
They wear no clothes and live in caves
But out in space they do in minutes
What our ships do at speeds infinite.

"Cultural paranoia," added Harcraft.

"Huh?"

"I mean just what I said. You and a million others recite that ditty, or variations of it every day of the week. It all adds up to the fact that the world is full of small-egoed animals who for ten years have done nothing but just scream that we're about to be attacked by the savage Ankorbades."

"Tch, tch," said Banner, "treason, my lieutenant, treason. Of you I had expected at least a show of chauvinism."

"Stop *tch-tch*ing me," Harcraft said irritably. "You've known how I felt about this mess for a long time."

"Yes, indeed," said Banner, yawning, "ever since you took that microcourse in culturology you have insights into the situation denied to the rest of the race."

"Anyway," Harcraft said, making a small adjustment on the screen, "you and countless other atavisims are reacting in a very predictable way. Since you can't reconcile the naked Ankorbades and their superior technology, and since they are alien to point of showing no interest whatsoever in our elaborate art, institutions, rituals—"

"And since," piped up Arnold, startling both men, "the human unconscious can't help but equate nakedness with savagery, we have armed our mighty planet to the teeth, convinced that Armageddon is around the corner."

"Well," said the surprised Harcraft

"Where'd you pick that up," asked Banner.

"From Captain Slatkin," said Arnold, smiling. "I met him when I was indoctrinated. He took the same micro-course in culturology. 'Course, he only believed that stuff when he was scared."

"Oh, you don't say," said Banner. "Tell us, my little friend, are you too, convinced that Armageddon is around the corner? Not that I really think you're capable of having an opinion."

"I got plenty of opinions, all right," said Arnold quietly, staring at his shoes. "Opinion number one is this: We're not really at war yet, but within the past two years, fifty-six patrol ships have disappeared in the vicinity of our friendly neighbor."

"That's not an opinion," Banner said. "And disappeared can mean a lot of things."

"Opinion number two," continued Arnold, scratching himself under an arm. "About the only diplomatic relations we got with them animals is when they write a note complaining about some Patrol ship getting too close to some piece of dirt in their system."

"Speaking of that, you'll have to excuse me for a moment," Harcraft said.

"Stop clowning," snapped Banner. "Listen to him. Here's your chance to get some insight into the nature of the thorn in your side. Go

on, Bean Brain. Any more opinions?"

"Yeah. If you're such a wise guy, tell me why you're here right now. Why?" Arnold's mouth screwed itself into a knowing, bitter smile. "When both of you were children you heard the story about the Big Fleet. So you made it into the Patrol, spent the rest of your life training, looking, thinking that some day—"

Harcraft broke in, "That tale about an Ankorbadian fleet build-up has been discredited a full thousand times. When they pried that crazy scout out of his ship, he was an hour away from the crematorium. You try spending forty-six days in space without food or water sometime! You'll see hidden arsenals of alien ships till hell won't have it."

"And" added Banner, "where is this fleet build-up supposed to take place? The patrol has had every planet in reachable space under scheduled surveillance for the past twenty years. You don't hide a thousand S-type cruisers in somebody's pocket."

"So nobody's scared, huh?" said Arnold. "So the entire space command has been playing footsie all over the galaxy for twenty years looking for a thousand ships that aren't there in the first place, huh?"

"Routine surveillance," said Harcraft.

"A thousand ships," said Arnold, slapping his sweating forehead. "They'll burn through our defense system like—"

"You're a paranoid rabble rouser," said Banner lightly. "We've got work to do up here. How about getting back to your bunk?"

Two days later they made scheduled contact with the caravan of potatoe fertilizer and tractor fuel. One thousand sleds, in tandem, were in proper orbit two hundred miles above Sedor II. Their orders provided for a landing on the planet and a short ship-leave, at the discretion of the ship's pilot to refresh personnel.

Banner and Harcraft decided against landing. All necessary contact, now that they were out of hyperdrive, could be accomplished with the ship's radio. Short planetfalls were, psychologically, more trouble than they were worth, often destroying the hard-earned, delicate space orientation which was their only defense against the abysmal boredom.

"It's a dull place anyway," explained Harcraft to Arnold, who had come up to the control room. "It's a mining and processing settlement. Maybe five hundred families altogether. Got a funny religion, too."

"Huh, what kind?"

"Well," began Harcraft breezily, "sort of sacrificial you might say. They believe in killing strangers who annoy their women."

"A dull place," agreed Arnold, wiping his nose with his sleeve.

"Speaking of religion," said Banner, "I just talked to their monitor on the radio. They've picked up

twelve big ships on their scanner during the past two days."

"Ankorbades?" asked Arnold quickly.

"Uh-huh. But not what you think. It's Easter time or some such thing at home. They all return to the home planet and stay there for about thirty days in the spring. Religious festival."

"Oh, yeah. They paint themselves blue and howl at both of their moons for a month. I read about it once."

"We'll be home, too, pretty soon," ventured Harcraft, for whom the return journey was subjectively always short.

"Let's hitch up to those sleds," Banner said. "It's time to get going."

Four weeks later two of the fertilizer sleds went out of phase and automatically cut the ship out of hyperdrive.

"A welcome diversion," said Banner to Harcraft, "you are now about to meet your mortal enemy face to face."

"Manual labor? Never," said Harcraft, assuming the pose of a man bravely facing the firing squad. "Patrol duty is my lifeblood. Even freight duty such as this I can stomach. But manual labor! Please captain, let the air out of the ship, if you will, but never shall these hands—"

"Somebody call me?" asked Arnold, appearing silently.

"Yeah," said Banner, "how'd you like to help?"

"Sure, what you got."

"Couple sleds are out of phase. You and Harcraft are going to slip into suits and go out and find the trouble."

Arnold shrugged, "O.K. with me, when do we start?"

"Pretty quick," said Banner, who had turned to look at the ship's spec-scanner. "Looks like we're in a belt of meteorites. We'll be able to match velocities, but we could still be creamed if the path gets too eccentric. Show him the way, Harcraft. I don't want to take any longer than necessary, either. Understand?"

Fifteen minutes later, both Arnold and Harcraft were out of the air lock, each clutching a new phase unit. Harcraft called instructions to Arnold over his suit's inter-com, but within minutes the smaller man was, if anything, more adept at the business of maneuvering himself through the void than his teacher. They replaced the phase unit in the first sled—the fiftieth from the ship—with Harcraft doing the work and Arnold watching.

"Can you do the next one alone?" Harcraft asked.

"Easy as pie," Arnold said. "Where is it?"

"About two hundred sleds farther back. Numbers on the side. Number two hundred sixty-three. Can you remember?"

"I ain't dumb. Where you gonna be?"

"Back in the ship. We'll be waiting for you."

Back again in the control cabin

with Banner, Harcraft was about to congratulate himself on inventing the apprentice system, when a piercing scream brought both men to their feet. "It's Arnold," Banner said. "Arnold, you all right?"

Harcraft pushed Banner away from the speaker. "Arnold, what's wrong, you O.K.?" The speaker remained silent.

"You better suit up," Banner said quietly.

"Yeah," Harcraft said, staring dumbly at the speaker. "Yeah, I better suit up."

"Wait. Better take a look on the viewscreen."

"Hey, he's coming this way! Quick, get ready at the air lock!"

It was fifteen minutes before they could get anything out of him, and then he wasn't too coherent. They gave him an injection of herodine to quiet him down, but his eyes still rolled wildly and all he could manage was: "Big hunk of rock . . . big hunk of rock . . . rock, quick . . . monkey ships."

"Any idea what he's talking about?"

"No," Banner said thoughtfully. "There was a sizable meteorite that came pretty close while you were on your way back to the ship, but I'd already tracked it before either one of you went outside."

"How close?"

"Hm-m-m. Visually, a dozen kilometers, I'd guess. I could run the tape if you—"

"Velocities almost the same?" asked Harcraft, who was now fiddling with the viewscreen controls.

"Yeah. Shouldn't be too hard to find. How about lugging Bean Brain back to his bunk. I'll run the tape, then you can plot it on the screen."

When Harcraft returned to the control cabin, Banner had already plotted it on the screen.

"I'll say it's a big piece of rock! About four kilometers in diameter."

"Yeah, but nothing out of order."

"Uh-huh. Let me turn up the magnification a little and see if—" Banner watched as Harcraft turned control buttons, skillfully increasing magnification without losing the field of view. Suddenly, the object exploded into iridescence. "What—"

"Watch," Harcraft said. He bumped the magnification as much as he dared.

"The Ankorbadian fleet," said Banner between clenched teeth.

They spent the next hour scanning the ship's micro-library for anything at all on Ankorbadian religious practices. There was nothing. Arnold awoke in another hour and seemed remarkably free of hysteria.

"What do you know about our friends' religious holiday?" asked Banner. "We checked the library without any luck."

Arnold scratched the side of his face. "Lemme think. Yeah, I remember. They go home to celebrate spring, like you said."

"They all go home?"

"Uh-huh. They got to. Only time they can mate. Only place, too."

"How long they stay? I've heard

it's about one of our months, but we have to know exactly."

"That's all I know. Read it some place a long time ago. Can I go back to sleep now?"

"Go back to sleep," said Banner.

They spent the next three hours maneuvering carefully around the asteroid. They took six thousand feet of movies and stared at the projections for another three hours. One thousand seven hundred and thirty silvery needles flashed reflected starlight into astonished, wild eyes.

"At least," whispered Banner, "there's nobody there."

"A lot of good that does us. They'll be back from their home planet in a few weeks, just as soon as the breeding season is over. Why should they leave anybody here? There's not a map in the galaxy that indicates the position of this piece of rock. And we haven't any weapons."

"I don't suppose the computer—"

"You can't compute an orbit without at least one more reference point. Besides, we're four weeks from any kind of fleet contact."

"Great. In other words, they'll be back here, ready to roll before we can even tell anybody that we don't know how to find it again."

"Right. And since there's not any room left to park another ship of that size, it's a pretty safe assumption that they are ready to roll."

"Armageddon" muttered Harcraft.

"You sure we don't have anything to—"

"Weapons? Yeah. We have a pistol and three small nitro paks in a locker some place. You couldn't even blow your way inside one of those ships. And if you could, you'd spend two weeks and then blow yourself to hell before you'd know anything about the armament."

"O.K., let's land and look around. Go get Arnold."

They cut off the sleds and plunged down, landing between two of the ships. Before putting on suits, Banner sent Arnold to the locker to get the three nitro paks. He hoped it would help him overcome the terrible feeling of nakedness and impotence.

They spent only a little time out of the ship. There was nothing to see that hadn't been seen before, and the heavy artificial gravity generated by the alien ships—coupled with a maze of deep crevices—made walking difficult and dangerous.

Back in the control cabin, Banner turned to Harcraft, "Any ideas?"

"Ideas? You mean for saving Homo sapiens? I'm afraid not. I simply do not feel up to saving six billion sentient organisms today. I feel—"

"You're getting hysterical," said Banner, whose own tight, small voice was barely audible.

"I got an opinion," said Arnold. "You guys stop crying for a minute and I'll tell you."

It took him five minutes to explain the whole thing. When he was through, both Banner and Harcraft turned him down flat. "Not a chance," said Banner. It would take

a week to set the thing up, and then it wouldn't work. Our best chance is a long one, but maybe we'll make it. We're four weeks away from any fleet contact, but it's the only sensible course of action."

"That makes it a total of eight weeks, with four weeks to get back here. That's two months," said Arnold. "You think they're gonna wait two months before they shove out of here?"

"Maybe not," Banner said. "But that's the only thing to do. And the sooner we get started the better the chances. Let's get going."

"You look here—" Arnold began.

"No more opinions, Bean Brain. You're not entitled to an opinion. You think we should take your word for everything you told us? Tell me why. You said yourself you never had any training. So you're guessing and hoping. It would take a staff of two dozen highly specialized technicians to even evaluate your idea, much less put it into action. Hell, man, face it. What do you know about geology, chemistry, mining? What do you know about anything?"

Arnold pointed a trembling finger at Banner. "Look, I told you that I know rock. I know plenty of gardening, too. I gave you guys a chance to say O.K. You still say no? Have it your way, but we'll do it my way." Both Banner and Harcraft found themselves staring into the barrel of the ship's only weapon.

Harcraft recovered from his astonishment quicker than Banner. "O.K., Bean Brain, have it your way." Quickly, casually he started for the cabin door. Then, with such speed that Banner hardly saw the movement, he chopped down viciously toward Arnold's wrist with the edge of his hand.

Harcraft recovered consciousness a half hour later. "Don't try that again, little boy," said Arnold with unconcealed hatred. "I'll give you another thirty minutes to catch your breath. Then we all go to work."

It took ten days instead of seven. Under Arnold's close supervision, they made the ship perform like a tractor, an air hammer, a foundation borer and an angledozer.

Once, when they told him that some particular maneuver couldn't be done, he took the controls himself, and came so close to killing them all that Banner, out of sheer terror, took over and made it do the things Arnold decreed necessary.

Finally it was finished. Two million tons of potato fertilizer, one million tons of tractor fuel combined into a slimy pulp lay jammed into the largest crevice on the asteroid. A few hours later they were a thousand miles out in space.

"Now?" asked Banner.

"Now," said Arnold.

With the viewscreen at maximum magnification, they watched as the asteroid blew itself into a thousand million pieces.

In the control cabin, a short week away from fleet contact, Banner was still gloating over the movies. "Look

at these. Before and After. How many medals you think we can carry on our strong, manly chests?"

"I really couldn't care less," answered Harcraft. "While you've been sitting there enriching your fantasy life, I've solved the mystery of mysteries."

"Out with it."

"O.K. While our little friend has been lying on his bunk ruining his beady eyes on the micro-viewer, I've been asking myself significant questions. Question number one: What kind of person does it take to survive the inactivity and boredom of three, four, maybe six months in a space can like this? Answer: It takes a highly trained and conditioned person such as yours truly or yourself. Arnold is obviously not such a person."

"Obviously."

"Question number two: Under what circumstances can a person as obviously intelligent as Arnold manage not to become a highly specialized member of society? And last, what kind of person can be so revoltingly unspecialized as to know, with fanatical certainty, that the main ingredient of a good potato fertilizer is ammonium nitrate; that such a substance is rather ineffective as an explosive unless you mix it with a good oxidizable material, such as Diesel fuel; that a four-square mile chunk of rock is 'brittle'—"

"And don't forget to add another nice facet—that he's a lot cleverer in the manly art of self-defense than you'll ever be."

"I acknowledge my humiliation and at the same time repeat my question: What kind of person can be so unspecialized and at the same time so miserably competent?"

"I give up. Do you really know the answer?"

"I know this. I know that whoever he is, it makes good sense to send somebody like him along with two overspecialized robots like us. Look at us. You couldn't pull a cotter pin with a pair of pliers if you knew what a cotter pin was. As for myself, if I'd of gotten that gun away from Arnold, I'm not even sure I'd have known how to fire it."

"Which still doesn't answer any questions."

"There are still a hundred places on our primitive homeland that provide the answer," said Harcraft thoughtfully. "Places where men spend half the year working with vegetables and fertilizer—"

"And the other half breaking rock with a sledge hammer?"

"Yes. And there's probably no better place than a cell to train for the isolation of space."

"Uh-huh. It also explains a certain familiarity with makeshift explosives and weapons."

"And, brother Bean Brain," summed up Harcraft wistfully. "What better place in the universe to find asylum from specialization."

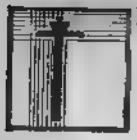
THE END

DODKIN'S JOB

BY JACK VANCE

***The really** essential question was, "Who's runnin' this shebang, anyhow?" The rough part of that question is, of course, that one man may think he is—while a quite different man does. So who do you ask?*

Illustrated by Bernklau



HE Theory of Organized Society — as developed by Kinch, Kolbig, Penton and others—yields such a wealth of significant information, such manifold intricacies and portentous projections, that occasionally it is well to consider the deceptively simple premise—here stated by Kolbig:

> When self-willed micro-units combine to form and sustain a durable macro-unit, certain freedoms of action are curtailed.
>
> This is the basic process of Organization.
>
> The more numerous and erratic the micro-units, the more complex to be the structure and function of the macro-unit—then the more pervasive and restrictive the details of the organization.
>
> "First Principles of Organization"
> Leslie Penton.

In general the population of the City had become forgetful of curtailed freedoms, as a snake no longer remembers the legs of his forebears. Somewhere someone has stated "When the discrepancy between the theory and practice of a culture is very great, this indicates that the culture is undergoing rapid change." By such a test the culture of the City was stable, if not static. The population ordered their lives by schedule, classification and precedent, satisfied with the bland rewards of Organization.

But in the healthiest tissue bacteria exist, and the most negligible impurity flaws a critical crystallization. Luke Grogatch, age forty, thin and angular, dour of forehead, sardonic of mouth and eyebrow, with a sidewise twist to his head as if he suffered from earache, was too astute to profess Nonconformity, too perverse to strive for improved status, too pessimistic, captious, sarcastic and outspoken to keep the jobs to which he found himself assigned. Each new reclassification depressed his status, each new job he disliked with increasing fervor.

Finally, rated as *Flunky, Class D, Unskilled,* Luke was dispatched to the District 8892 Sewer Maintenance Department and there ordered out as night-shift swamper on Tunnel Gang No. 3's rotary drilling machine.

Reporting for work, Luke presented himself to the gang foreman, Fedor Miskitman, a big buffalo-faced man with flaxen hair and placid blue eyes. Miskitman produced a shovel and took Luke close up behind the drilling machine's cutting head. Here, said Miskitman, was Luke's station. Luke would be required to keep the tunnel floor clean of loose rock and gravel. When the tunnel broke into an old sewer, there would be scale and that detritus known as "wet waste" to remove. Luke must keep the dust trap clean and in optimum adjustment. During rest breaks he must lubricate those bearings isolated from the automatic lubrication system, and replace broken teeth on the cutting head as necessary

Luke inquired if this were the extent of his duties, his voice strong with an irony the guileless Fedor Miskitman failed to notice.

"That is all," said Miskitman. He gave Luke the shovel. "Mostly it is the trash. The floor must be clean."

Luke suggested a modification of the hopper jaws which would tend to eliminate the spill of broken rock; in fact, argued Luke, why bother at all? Let the rock lay where it fell. The concrete tunnel lining would mask so trivial a scatter of gravel. Miskitman dismissed the suggestion out of hand; the rock must be removed. Luke asked why, and Miskitman told him, "That is the way the job is done."

Luke made a rude noise under his breath. He tested the shovel, and shook his head in dissatisfaction. The handle was too long, the blade too short. He reported as much to Miskitman, who only glanced at his watch and signaled the drill operator. The machine whined into revolution, and with an ear-splitting roar made contact with the rock. Miskitman departed and Luke went to work.

During the shift he found that if he worked in a half-crouch most of the hot dust-laden exhaust passed over his head. Changing a cutting tooth during the first rest period he burned a blister on his left thumb. At the end of the shift a single consideration deterred Luke from declaring himself unqualified: he would be declassified from *Flunky, Unskilled, Class D* to *Junior Executive,* with a corresponding cut in expense account. Such a declassification would take him to the very bottom of the Status List, and could not be countenanced; his present expense account was barely adequate, comprising nutrition at a Type RP Victualing Service, sleeping space in a Sublevel 22 dormitory, and sixteen Special Coupons per month. He took Class 14 Erotic Processing, and was allowed twelve hours per month at his Recreation Club, with optional use of bar bells, table-tennis equipment, two miniature bowling alleys, and any of the six telescreens tuned permanently to Band H.

Luke often daydreamed of a more sumptuous life: AAA nutrition, a suite of rooms for his exclusive use, Special Coupons by the bale, Class 7, Erotic Processing, or even Class 6, or 5: despite Luke's contempt for the High Echelon he had no quarrel with High Echelon perquisites. And always as a bitter coda to the daydreams came the conviction that he might have enjoyed these good things in all reality. He had watched his fellows jockeying; he knew all the tricks and techniques.

"I'd rather be Type D Flunky," sneered Luke to himself

Occasionally a measure of doubt would seep into Luke's mind. Perhaps he merely lacked the courage to compete, to come to grips with the world! And the seep of doubt would become a trickle of self-contempt. A Nonconformist, that's what he was—and lacked the courage to admit it!

Then Luke's obstinacy would reas-

sert itself. Why admit to Nonconformity when it meant a trip to the Disorganized House? A fool's trick —and Luke was no fool. Perhaps he was a Nonconformist in all reality; again perhaps not—he had never really made up his mind. He presumed that he was suspected; occasionally he intercepted queer side glances and significant jerks of the head among his fellow workers. Let them leer. They could prove nothing.

But now—he was Luke Grogatch, Type D Flunky, separated by a single status from the nonclassified sediment of criminals, idiots, children and proved Nonconformists. Luke Grogatch, who had dreamed such dreams of the High Echelon, of pride and independence! Instead—Luke Grogatch, Type D Flunky. Taking orders from a hay-headed lunk, working with semiskilled laborers with status almost as low as his own: Luke Grogatch, flunky.

Seven weeks passed. Luke's dislike for his job became a mordant passion. The work was arduous, hot, repellent. Fedor Miskitman turned an uncomprehending gaze on Luke's most rancorous grimaces, grunted and shrugged at Luke's suggestions and arguments. This was the way things were done, his manner implied—always had been done, and always would be done.

Fedor Miskitman received a daily policy directive from the works superintendent which he read to the crew during the first rest break of the shift These directives generally dealt with such matters as work norms, team spirit and co-operation, pleas for a finer polish on the concrete, warnings against off-shift indulgence which might dull enthusiasm and decrease work efficiency. Luke usually paid small heed, until one day Fedor Miskitman, pulling out the familiar yellow sheet, read in his stolid voice:

PUBLIC WORKS DEPARTMENT, PUBLIC UTILITIES DIVISION
AGENCY OF SANITARY WORKS, DISTRICT 8892
SEWAGE DISPOSAL SECTION

Bureau of Sewer Construction and Maintenance
Office of Procurement

Policy Directive: 6511 Series BV96
Order Code: GZP—AAR—REG
Reference: G98—7542
Date Code: BT—EQ—LLT
Authorized: LL8—P-SC 8892
Checked: 48
Counterchecked: 92C

From: Lavester Limon, Manager, Office of Procurement
Through: All construction and maintenance offices
To: All construction and maintenance superintendents
Attention: All job foremen

Subject: Tool longevity, the promotion thereof
Instant of Application: Immediate
Duration of Relevance: Permanent

Substance: At beginning of each shift all hand tools shall be checked out of District 8892 Sewer Maintenance Warehouse At close of each shift all hand tools shall be carefully cleaned, returned to District 8892 Sewer Maintenance Warehouse

Directive reviewed and transmitted: Butry Keghorn, General Superintendent of Construction, Bureau of Sewer Construction

Clyde Kaddo, Superintendent of Sewer Maintenance

As Fedor Miskitman read the "Substance" section, Luke expelled his breath in an incredulous snort. Miskitman finished, folded the sheet with careful movements of his thick fingers, looked at his watch. "That is the directive. We are twenty-five seconds overtime; we must get back to work."

"Just a minute," said Luke. "One or two things about that directive I want explained."

Miskitman turned his mild gaze upon Luke. "You did not understand it?"

"Not altogether. Who does it apply to?"

"It is an order for the entire gang."

"What do they mean 'hand tools'?"

"These are tools which are held in the hands."

"Does that mean a shovel?" Luke insisted.

"A shovel?" Miskitman shrugged his burly shoulders. "A shovel is a hand tool."

Luke asked in a voice of hushed wonder: "They want me to polish my shovel, carry it four miles to the warehouse, then pick it up tomorrow and carry it back here?"

Miskitman unfolded the directive, held it at arm's length, read with moving lips. "That is the order." He refolded the paper, returned it to his pocket.

Luke again feigned astonishment. "Certainly there's a mistake."

"A mistake?" Miskitman was puzzled. "Why should there be a mistake?"

"They can't be serious," said Luke.

"It's not only ridiculous, it's peculiar."

"I do not know," said Miskitman incuriously. "To work; we are late one minute and a half."

"I assume that all this cleaning and transportation is done on Organization time," Luke suggested.

Miskitman unfolded the directive, held it at arm's length, read. "It does not say so. Our quota is not different." He folded the directive, put it in his pocket.

Luke spat at the rock floor. "I'll bring my own shovel. Let 'em carry around their own precious hand tools."

Miskitman scratched his chin, once more re-read the directive. He shook his head dubiously. "The order says that all hand tools must be cleaned and taken to the warehouse. It does not say who owns the tools."

Luke could hardly speak for exasperation. "You know what I think of that directive?"

Fedor Miskitman paid him no heed. "To work. We are late."

"If I was general superintendent—" Luke began, but Miskitman rumbled roughly. "We do not earn perquisites by talking. To work."

The rotary cutter started up; seventy-two teeth snarled into gray-brown sandstone. Hopper jaws swallowed the chunks, passing them down an epiglottis into a feeder gut which evacuated far down the tunnel into lift buckets. Stray chips rained upon the tunnel floor, which Luke Grogatch must scrape up and return into the hopper. Behind Luke two reinforcement men flung steel hoops into place, flash-welding them to longitudinal bars with quick pinches of the fingers, contact plates in their gauntlets discharging the requisite group of energy. Behind came the concrete spray man, mix hissing out of his revolving spider, followed by two finishers, nervous men working with furious energy, stroking the concrete into a glossy polish.

Fedor Miskitman marched back and forth, testing the reinforcement, gauging the thickness of the concrete, making frequent progress checks on the chart to the rear of the rotary cutter, where an electronic device traced the course of the tunnel, guiding it through the system of conduits, ducts, passages, pipes, tubes for water, air, gas, steam, transportation, freight, and communication which knit the City into an Organized unit.

The night shift ended at four o'clock in the morning. Miskitman made careful entries in his log; the concrete spray man blew out his nozzles, the reinforcement workers removed their gauntlets, power packs and insulating garments. Luke Grogatch straightened, rubbed his sore back, stood glowering at the shovel. He felt Miskitman's ox-calm scrutiny. If he threw the shovel to the side of the tunnel as usual and marched off about his business, he would be guilty of disorganized conduct. The penalty, as Luke knew well, was declassification. Luke stared at the shovel, fuming with humiliation. Conform, or be

declassified. Submit—or become a Junior Executive.

Luke heaved a deep sigh. The shovel was clean enough; one or two swipes with a rag would remove the dust. But there was the ride by crowded man belt to the warehouse, the queue at the window, the check-in, the added distance to his dormitory. Tomorrow the process must be repeated. Why the necessity for this added effort? Luke knew well enough. An obscure functionary somewhere along the chain of bureaus and commissions had been at a loss for a means to display his diligence. What better method than concern for valuable City property? Consequently the absurd directive, filtering down to Fedor Miskitman and ultimately Luke Grogatch, the victim. What joy to meet this obscure functionary face to face, to tweak his sniveling nose, to kick his craven rump along the corridors to his own office.

Fedor Miskitman's voice disturbed his reverie. "Clean your shovel. It is the end of the shift."

Luke made token resistance. "The shovel is clean," he growled. "This is the most absurd antic I've ever been coerced into; if only I—"

Fedor Miskitman, in a voice as calm and unhurried as a deep river, said, "If you do not like the policy, you should put a petition in the Suggestion Box. That is the privilege of all. Until the policy is changed you must conform. That is the way we live. That is Organization, and we are Organized men."

"Let me see that directive," Luke barked. "I'll get it changed. I'll cram it down somebody's throat. I'll—"

"You must wait until it is logged. Then you may have it; it is useless to me."

"I'll wait," said Luke between clenched teeth.

With method and deliberation Fedor Miskitman made a final check of the job: inspecting machinery, the teeth of the cutterhead, the nozzles of the spider, the discharge belt. He went to his little desk at the rear of the rotary drill, noted progress, signed expense account vouchers, finally registered the policy directive on minifilm. Then with a ponderous sweep of his arm, he tendered the yellow sheet to Luke. "What will you do with it?"

"I'll find who formed this idiotic policy. I'll tell him what I think of it and what I think of him, to boot."

Miskitman shook his head in disapproval. "That is not the way such things should be done."

"How would you do it?" asked Luke with a wolfish grin.

Miskitman considered, pursing his lips, perking his bristling eyebrows. At last with great simplicity of manner he said, "I would not do it."

Luke threw up his hands, set off down the tunnel. Miskitman's voice boomed against his back. "You must take the shovel!"

Luke halted. Slowly he faced about, glared back at the hulking form of the foreman. Obey the policy directive, or be declassified. With slow steps, a hanging head and averted eyes, he retraced his path. Snatching

the shovel, he stalked back down the tunnel. His bony shoulder blades were exposed and sensitive, and Fedor Miskitman's mild blue gaze, following him, seemed to scrape the nerves of his back.

Ahead the tunnel extended, a glossy pale sinus, dwindling back along the distance they had bored. Through some odd trick of refraction alternate bright and dark rings circled the tube, confusing the eye, creating a hypnotic semblance of two-dimensionality. Luke shuffled dreamily into this illusory bull's-eye, dazed with shame and helplessness, the shovel a load of despair. Had he come to this— Luke Grogatch, previously so arrogant in his cynicism and barely concealed Nonconformity? Must he cringe at last, submit slavishly to witless regulations? If only he were a few places farther up the list!

Dreamily he pictured the fine incredulous shock with which he would have greeted the policy directive, the sardonic nonchalance with which he would have let the shovel fall from his limp hands— Too late, too late! Now he must toe the mark, carry his shovel dutifully to the warehouse.

In a spasm of rage he flung the blameless implement clattering down the tunnel ahead of him. Nothing he could do! Nowhere to turn! No way to strike back! Organization, smooth and relentless; Organization, massive and inert, tolerant of the submissive, serenely cruel to the unbeliever— Luke came to his shovel and whispering an obscenity snatched it up and half-ran down the pallid tunnel.

He climbed through a manhole, emerged upon the deck of the 1123rd Avenue Hub, where he was instantly absorbed in the crowds trampling between the man belts, which radiated like spokes, and the various escalators. Clasping the shovel to his chest, Luke struggled abroad the Fontego Man Belt and rushed south, in a direction opposite to that of his dormitory. He rode ten minutes to Astoria Hub, dropped a dozen levels on the Grimesby College Escalator, crossed a gloomy dank area smelling of old rock to a local feeder belt which carried him to the District 8892 Sewer Maintenance Warehouse.

Luke found the warehouse brightly lit, and the center of considerable activity, with several hundred men coming and going. Those coming, like Luke, carried tools, those going went empty-handed.

Luke joined the line which had formed in front of the tool storeroom. Fifty or sixty men preceded him, a drab centipede of arms, shoulders, heads, legs the tools projecting to either side. The centipede moved slowly, the men exchanging badinage and quips.

Observing this patience, Luke's normal irascibility asserted itself. Look at them, he thought, standing like sheep, jumping to attention at the rustle of an unfolding directive. Did they inquire the reason for the order? Did they question the necessity for their inconvenience? No! The louts stood chuckling and chatting, accepting the directive as one of life's

incalculable vicissitudes, something elemental and arbitrary, like the changing of the seasons— And he, Luke Grogatch, was he better or worse? The question burned in Luke's throat like the after-taste of vomit.

Still, better or worse, where was his choice? Conform or declassify. A poor choice. There was always the recourse of the Suggestion Box, as Fedor Mishitman, perhaps in bland jest, had pointed out. Luke growled in disgust. Weeks later he might receive a printed form with one statement of a multiple choice checked off by some clerical flunky or junior executive: "The situation described by your petition is already under study by responsible officials. Thank you for your interest." Or "The situation described by your petition is temporary and may shortly be altered. Thanks for your interest." Or "The situation described by your petition is the product of established policy and is not subject to change. Thank you for your interest."

A novel thought occurred to Luke: he might exert himself and reclassify up the list. As soon as the idea arrived he dismissed it. In the first place he was close to middle-age; too many young men were pushing up past him. Even if he could goad himself into the competition—

The line moved slowly forward. Behind Luke a plump little man stooped under the weight of a Velstro toolkip. A forelock of light brown floss dangled into his moony face; his mouth was puckered into a rosebud of concentration, his eyes were absurdly serious. He wore a rather dapper pink and brown coverall with orange ankle boots, a blue beret with the three orange pom-poms affected by the Velstro technicians.

Between shabby sour-mouthed Luke and this short moony man in the dandy's coveralls existed so basic a difference that an immediate mutual dislike was inevitable.

The short man's prominent hazel eyes rested on Luke's shovel, traveled thoughtfully over Luke's dirt-stained trousers and jacket. He turned his eyes to the side.

"Come a long way?" Luke asked maliciously.

"Not far," said the moon-faced man.

"Worked overtime, eh?" Luke winked. "A bit of quiet beavering, nothing like it—or so I'm told."

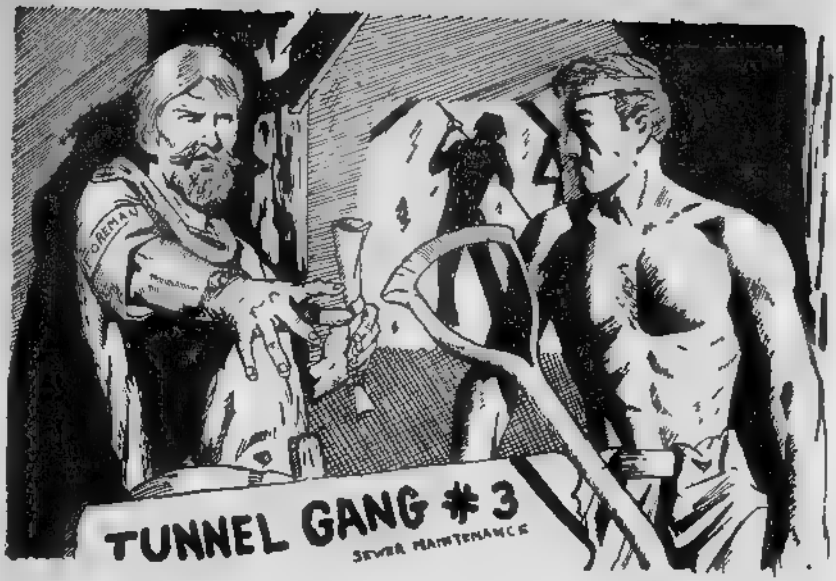
"We finished the job," said the plump man with dignity. "Beavering doesn't enter into it. Why spend half tomorrow's shift on five minutes work we could do tonight?"

"I know a reason," said Luke wisely. "To do your fellow man a good one in the eye."

The moon-faced man twisted his face in a quick uncertain smile, then decided that the remark was not humorous. "That's not my way of working," he said stiffly.

"That thing must be heavy," said Luke, noting how the plump little arms struggled and readjusted to the irregular contours of the tool.

"Yes," came the reply. "It is heavy."



"An hour and a half," intoned Luke. "That's how long it's taking me to park this shovel. Just because somebody up the list has a nightmare. And we poor hoodlums at the bottom suffer."

"I'm not at the bottom of the list. I'm a Technical Tool Operator."

"No difference," said Luke. "The hour and a half is the same. Just for somebody's silly notion."

"It's not really so silly," said the moon-faced man. "I fancy there is a good reason for the policy."

Luke shook the handle of the shovel. "And so I have to carry this back and forth along the man belt three hours a day?"

The moony little man pursed his lips. "The author of the directive undoubtedly knows his business very well. Otherwise he'd not hold his classification."

"Just who is this unsung hero?" sneered Luke. "I'd like to meet him. I'd like to learn why he wants me to waste three hours a day."

The short man now regarded Luke as he might an insect in his victual ration. "You talk like a Nonconformist. Excuse me if I seem offensive."

"Why apologize for something you can't help?" asked Luke and turned his back.

He flung his shovel to the clerk behind the wicket and received a check. Elaborately Luke turned to the moon-faced man, tucked the check into his breast pocket. "You keep this; you'll be using that shovel before I will."

He stalked proudly out of the warehouse. A grand gesture, but—he hesitated before stepping on the man belt . . . was it sensible? The moony technical tool operator in the pink and brown coveralls came out of the warehouse behind him, turned him a queer glance, hurried away.

Luke looked back into the warehouse. If he returned now he could set things right and tomorrow there'd be no trouble. If he stormed off to his dormitory, it meant another declassification: Luke Grogatch, Junior Executive— Luke reached into his jumper, took out the policy directive he had acquired from Fedor Miskitman: a bit of yellow paper, printed with a few lines of type, a trivial thing in itself but it symbolized the Organization: massive force in irresistible operation.

Nervously Luke plucked at the paper and looked back into the warehouse. The tool operator had called him a Nonconformist; Luke's mouth quirked in a brief weary grimace. It wasn't true. Luke was not a Nonconformist; Luke was nothing in particular. And he needed his bed, his nutrition ticket, his meager expense account.

Luke groaned quietly—almost a whimper. The end of the road. He had gone as far as he could go; had he ever thought he could defeat the Organization? Maybe he was wrong and everyone else was right. Possible, thought Luke without conviction. Miskitman seemed content enough; the technical tool operator seemed not only content but complacent. Luke leaned against warehouse wall, eyes burning and moist with self-pity. Nonconformist, misfit. What was he going to do?

He curled his lip spitefully, stepped forward on the man belt. Devil take them all; they could declassify him; he'd become a junior executive and laugh!

In subdued spirits Luke rode back to the Grimesby Hub. Here, about to board the escalator, he stopped short, blinking and rubbing his long sallow chin, considering still another aspect to the matter. It seemed to offer a chance of—but no . . . Hardly likely . . . And yet, why not? Once again he examined the directive. Lavester Limon, Manager of the District Office of Procurement, presumably had issued the policy. Lavester Limon could rescind it. If Luke could so persuade Limon, his troubles, while not dissipated, at least would be lessened. He could report shovelless to his job, he could return sardonic grin for bland hidden grin with Fedor Miskitman. He might even go to the trouble of locating the moon-faced little technical tool operator with the inchskip—

Luke sighed. Why continue this futile daydream? First Lavester Limon must be induced to rescind the directive—and what were the odds of this? Perhaps not astronomical after all, mused Luke as he rode the man belt back to his dormitory. The directive clearly was impractical. It worked an inconvenience on many people, while accomplishing very little. If Lavester Limon could be persuaded of this, if he could be shown that his own

prestige and reputation was suffering, he might agree to recall the ridiculous directive.

Luke arrived at his dormitory shortly after seven. He went immediately to the communication booth, called the District 8892 Office of Procurement. Lavester Limon, so he found, would be arriving at eight-thirty.

Luke made a careful toilet, and after due consideration invested four Special Coupons in a fresh set of fibers: a tight black jacket and blue trousers of somewhat martial cut, of considerably better quality than his usual costume

He took his morning quota of nutrition at a nearby Type RP Victualing Service, then ascended to Sublevel 14 and rode the manbelt to District 8892 Bureau of Sewer Construction and Maintenance.

A pert office girl, dark hair pulled forward over her face in the modish "Robber Baron" style, conducted Luke into Lavester Limon's office. At the door she glanced demurely backward, and Luke was glad that he had invested in new clothes. Responding to the stimulus, he threw back his shoulders, marched confidently into Lavester Limon's office.

Lavester Limon, sitting at his desk, bumped briefly to his feet in courteous acknowledgment — an amiable-seeming man of middle stature, golden-brown hair brushed carefully across a freckled and sun-tanned bald spot; golden-brown eyes, round and easy; a golden-brown lounge jacket and trousers of fine golden-brown corduroy. He waved his arm to a chair. "Won't you sit down, Mr. Grogatch?"

In the presence of so much cordiality Luke relaxed his truculence, and even felt a burgeoning of hope. Limon seemed a decent sort; perhaps the directive was, after all, an administrative error.

Limon raised his golden-brown eyebrows inquiringly.

Luke wasted no time on preliminaries. He brought forth the directive. "My business concerns this, Mr. Limon: a policy which you seem to have formulated."

Limon took the directive, read, nodded. "Yes, that's my policy. Something wrong?"

Luke felt surprise and a pang of premonition: surely so reasonable-seeming a man must instantly perceive the folly of the directive!

"It's simply not a workable policy," said Luke earnestly. "In fact, Mr. Limon, it's completely unreasonable!"

Lavester Limon seemed not at all offended. "Well, well! And why do you say that? Incidentally, Mr. Grogatch, you're—" And the golden-brown eyebrows arched inquiringly.

"I'm a flunky, Class D, on a tunnel gang," said Luke. "Today it took me an hour and a half to check my shovel. Tomorrow, there'll be another hour and a half checking the shovel out. All on my own time. I don't think that's reasonable."

Lavester Limon reread the directive, pursed his lips, nodded his head once or twice. He spoke into his desk phone. "Miss Rabb, I'd like to see"

—he consulted the directive's reference number — "Item 7542, File C10H." To Luke he said in rather an absent voice: "Sometimes these things become a trifle complicated—"

"But can you change the policy?" Luke burst out. "Do you agree that it's unreasonable?"

Limon cocked his head to the side, made a doubtful grimace. "We'll see what's on the reference. If my memory serves me—" His voice faded away.

Twenty seconds passed. Limon tapped his fingers on his desk. A soft chime sounded. Limon touched a button; his desk-screen exhibited the item he had requested: another policy directive similar in form to the first:

PUBLIC WORKS DEPARTMENT, PUBLIC UTILITIES DIVISION
AGENCY OF SANITARY WORKS, DSTRICT 8892
SEWAGE DISPOSAL SECTION

Director's Office

Policy Directive: 2888 Series BQ008
Order Code: GZP—AAR—REF
Reference: OP9 123
Date Code: BR—EQ—LLT
Authorized: JR D-SDS
Checked: AC
Counterchecked: CX McD

From: Judiath Ripp, Director
Through:
To: Lavester Limon, Manager, Office of Procurement
Attention:

Subject: Economies of operation
Instant of Application: Immediate
Duration of Relevance: Permanent
Substance: Your monthly quota of supplies for disbursement Type A, B, D, F, H is hereby reduced 2.2%. It is suggested that you advise affected personnel of this reduction, and take steps to insure most stringent economies. It has been noticed that department use of supplies Type D in particular is in excess of calculated norm.
Suggestion: Greater care by individual users of tools, including warehouse storage at night.

"Type D supplies," said Lavester Limon wryly, "are handtools. Old Ripp wants stringent economies. I merely pass along the word. That's the story behind 6511." He returned the directive in question to Luke, leaned back in his seat. "I can see how you're exercised, but"—he raised his hands in a careless, almost flippant, gesture—"that's the way the Organization works."

Luke sat rigid with disappointment. "Then you won't revoke the directive?"

"My dear fellow! How can I?"

Luke made an attempt at reckless nonchalance. "Well, there's always room for me among the junior executives. I told them where to put their shovel."

"Rash. Sorry I can't help." Limon surveyed Luke curiously, and his lips curved in a faint grin. "Why don't you tackle old Ripp?"

Luke squinted sidewise in suspicion. "What good will that do?"

"You never know," said Limon breezily. "Suppose lightning strikes, suppose he rescinds his directive? I can't agitate with him myself, I'd get in trouble—but there's no reason why you can't." He turned Luke a quick knowing smile, and Luke understood that Lavester Limon's amiability, while genuine, served as a useful camouflage for self-interest and artful playing of the angles.

Luke rose abruptly to his feet. He played cat's-paw for no one, and he opened his mouth to tell Lavester Limon as much. In that instant a recollection crossed his mind: the scene in the warehouse, where he contemptuously had tossed the check for his shovel to the technical tool operator. Always Luke had been prone to the grand gesture, the reckless commitment which left him no scope for retreat. When would he learn self-control? In a subdued voice Luke asked, "Who is this Ripp again?"

"Judiath Ripp, Director of the Sewage Disposal Section. You may have difficulty getting in to see him, he's a troublesome old brute. Wait, I'll find out if he's at his office."

He made inquiries into his desk phone. Information returned to the effect that Judiath Ripp had just arrived at the Section office on Sublevel 3, under Bramblebury Park.

Limon gave Luke tactical advice. "He's choleric, something of a barker. Here's the secret: pay no attention to him. He respects firmness. Pound the table, roar back at him. If you pussyfoot, he'll sling you out. Give him tit-for-tat and he'll listen."

Luke looked hard at Lavester Limon, well aware that the twinkle in the gold-brown eyes was malicious glee. He said, "I'd like a copy of that directive, so he'll know what I'm talking about."

Limon sobered instantly. Luke could read his mind: *Will Rapp hold it against me if I send up this crackpot? It's worth the chance.* "Sure," said Limon. "Pick it up from the girl."

Luke ascended to Sublevel 3, walked through the pleasant tri-level arcade below Bramblebury Park. He

passed the tall glass-walled fish tank open to the sky and illuminated by sunlight, boarded the local man belt, and after a ride of two or three minutes alighted in front of the District 8002 Agency of Sanitary Works.

The Sewage Disposal Section occupied a rather pretentious suite off a small courtyard garden. Luke walked along a passage tiled with blue, gray and green mosaic, entered a white room furnished in pale gray and pink. A long mural of cleverly twisted gold, black and white tubing decorated one wall, another was swathed in heavy green leaves growing from a chest-high planter. At a desk sat the receptionist, a plump pouty blond girl, with a simulated bone through her nose and a shark's-tooth necklace dangling around her neck. She wore her hair tied up over her head like a sheaf of wheat, and an amusing black and brown primitive symbol decorated her forehead.

Luke explained that he wished a few words with Mr. Judiath Ripp, Director of the Section.

Perhaps from uneasiness, Luke spoke brusquely. The girl blinked in surprise, examined him curiously. After a moment's hesitation the girl shook her head doubtfully. "Won't someone else do? Mr. Ripp's day is tightly scheduled. What did you want to see him about?"

Luke, attempting a persuasive smile, achieved a leer of sinister significance. The girl was frankly startled.

"Perhaps you'll tell Mr. Ripp I'm here," said Luke. "One of his policy directives . . . well, there have been irregularities, or rather a misapplication—"

"Irregularities?" The girl seemed to hear only the single word. She gazed at Luke with new eyes, observing the crisp new black and blue garments with their quasi-military cut. Some sort of inspector? "I'll call Mr. Ripp," she said nervously. "Your name, sir, and status?"

"Luke Grogatch. My status—" Luke smiled once more, and the girl averted her eyes. "It's not important."

"I'll call Mr. Ripp, sir. One moment, if you please." She swung around, murmured anxiously into her screen, looked at Luke and spoke again. A thin voice rasped a reply. The girl swung back around, nodded at Luke. "Mr. Ripp can spare a few minutes. The first door, please."

Luke walked with stiff shoulders into a tall wood-paneled room, one wall of which displayed green-glowing tanks of darting red and yellow fish. At the desk sat Judiath Ripp, a tall heavy man, himself resembling a large fish. His head was narrow, pale as mackerel, and rested backward-tilting on his shoulders. He had no perceptible chin; the neck ran up to his carplike mouth. Pale eyes stared at Luke over small round nostrils; a low brush of hair thrust up from the rear of his head like dry grass over a sand dune. Luke remembered Lavester Limon's verbal depiction of Ripp: "choleric." Hardly appropriate. Had Limon a grudge against Ripp? Was he using Luke as an instrument of

mischievous revenge? Luke suspected as much; he felt uncomfortable and awkward.

Judiath Ripp surveyed him with cold unblinking eyes. "What can I do for you, Mr. Grogatch? My secretary tells me you are an investigator of some sort."

Luke considered the situation, his narrow black eyes fixed on Ripp's face. He told the exact truth. "For several weeks I have been working in the capacity of a Class D Flunky on a tunnel gang."

"What the devil do you investigate on a tunnel gang?" Ripp asked in chilly amusement.

Luke made a slight gesture, signifying much or nothing, as one might choose to take it. "Last night the foreman of this gang received a policy directive issued by Lavester Limon of the Office of Procurement. For sheer imbecility this policy caps any of my experience."

"If it's Limon's doing, I can well believe it," said Ripp between his teeth.

"I sought him out in his office. He refused to accept responsibility and referred me to you."

Ripp sat a trifle straighter in his chair. "What policy is this?"

Luke passed the two directives across the desk, Ripp read slowly, then reluctantly returned the directives. "I fail to see exactly—" he paused. "I should say, these directives merely reflect instructions received by me, and which I have implemented. Where is the difficulty?"

"Let me cite my personal experience," said Luke. "This morning — as I say, in my temporary capacity as a flunky—I carrried a shovel from tunnel head to warehouse and checked it. The operation required an hour and a half. If I were working steadily on a job of this sort, I'd be quite demoralized."

Ripp appeared untroubled. "I can only refer to my superiors." He spoke aside into his desk phone. "Please transmit File OR9 Item 123." He turned back to Luke. "I can't take responsibility, either for the directive or for revoking it. May I ask what sort of investigation takes you down into the tunnels? And to whom you report?"

At a loss for words at once evasive and convincing, Luke conveyed an attitude of contemptuous silence.

Judiath Ripp contracted the skin around his blank round eyes in a frown. "As I consider this matter I become increasingly puzzled Why is this subject a matter for investigation? Just who—"

From a slot appeared the directive Ripp had requested He glanced at it, tossed it to Luke. "You'll see that this relieves me totally of responsibility," he said shortly.

The directive was the standard form:

PUBLIC WORKS DEPARTMENT, PUBLIC UTILITIES DIVISION
Office of
The Commissioner of Public Utilities

Policy Directive: 449 Series UA-14-G2
Order Code: GZP—AAR—REF
Reference TQ9—1422
Date Code BP—EQ—LLT
Authorized PU-PUD-Org.
Checked G Evan
Countersigned: Hernon Klanech

From Parris deVicker, Commissioner of Public Utilities
Through: All District Agencies of Sanitary Works
To All Department Heads
Attention:

Subject: The urgent need for sharp and immediate economies in the use of equipment and consumption of supplies.
Instant of Application: Immediate
Duration of Relevance: Permanent
Substance: All department heads are instructed to initiate, effect and enforce rigid economies in the employment of supplies and equipment, especially those items comprised of or manufactured from alloy metals or requiring the functional consumption of same, in those areas in which official authority is exercised A decrement of 2% will be considered minimal. Status augmentation will in some measure be affected by economies achieved.

Directive reviewed and transmitted: Lee Jon Smith, District Agent of Sanitary Works 8892

Luke rose to his feet, concerned now only to depart the office as quickly as possible. He indicated the directive. "This is a copy?"

"Yes."

"I'll take it, if I may."

He included it with the previous two.

Judiath Ripp watched with a faint but definite suspicion. "I fail to understand whom you represent."

"Sometimes the less one knows the better," said Luke.

The suspicion faded from Judiath Ripp's piscine face. Only a person secure in his status could afford to use language of this sort to a member of the low High Echelon. He nodded slightly. "Is that all you require?"

"No," said Luke, "but it's all I can get here."

He turned toward the door, feeling

the rake of Ripp's eyes on his back.

Ripp's voice cut at him suddenly and sharply. "Just a moment."

Luke slowly turned.

"Who are you? Let me see your credentials."

Luke laughed coarsely. "I don't have any."

Judiath Ripp rose to his feet, stood towering with knuckles pressed on the desk. Suddenly Luke saw that, after all, Judiath Ripp *was* choleric. His face, mackerel-pale, became suffused with salmon-pink. "Identify yourself," he said throatily, "before I call the watchman."

"Certainly," said Luke. "I have nothing to hide. I am Luke Grogatch. I work as Class D Flunky on Tunnel Gang No. 3 out of the Bureau of Sewer Construction and Maintenance."

"What are you doing here, misrepresenting yourself, wasting my time?"

"Where did I misrepresent myself?" demanded Luke in a contentious voice. "I came here to find out why I had to carry my shovel to the warehouse this morning. It cost me an hour and a half. It doesn't make sense. You've been ordered to economize two per cent, so I spend three hours a day carrying a shovel back and forth."

Judiath Ripp stared at Luke ten seconds, then abruptly sat down. "You're a Class D Flunky?"

"That's right."

"Hm-m-m. You've been to the Office of Procurement. The manager sent you here?"

"No. He gave me a copy of his directive, just as you did."

The salmon-pink flush had died from Ripp's flat cheeks. The carplike mouth twitched in infinitesimal amusement. "No harm in that certainly. What do you hope to achieve?"

"I don't want to carry that blasted shovel back and forth. I'd like you to issue orders to that effect."

Judiath Ripp spread his pale mouth in a cold drooping smile. "Bring me a policy directive to the effect from Parris deVicker and I'll be glad to oblige you. Now—"

"Will you make an appointment for me?"

"An appointment?" Ripp was puzzled. "With whom?"

"With the Commissioner of Public Utilities."

"Pffah." Ripp waved his hand in cold dismissal. "Get out."

Luke stood in the blue-mosaic entry seething with hate for Ripp, Limon, Miskitman and every intervening functionary. If he were only Chairman of the Board for a brief two hours—went the oft-repeated daydream—how they'd quick-step! In his mind's eye he saw Judiath Ripp shoveling wads of "wet waste" with a leaden shovel while a rotary driller, twice as noisy and twice as violent, blew back gales of hot dust and rock chips across his neck. Lavester Limon would be forced to change the smoking teeth of the drill with a small and rusty monkey wrench, while Fedor Miskitman, before and after the shift, carried shovel, monkey wrench and all

the worn teeth to and from the warehouse.

Luke stood moping in the passage for five minutes, then escalated to the surface, which at this point, by virtue of Bramblebury Park, could clearly be distinguishable as the surface and not just another level among co-equal levels. He walked slowly along the gravel paths, ignoring the open sky for the immediacy of his problems. He faced a dead end. There was no further scope of action. Judiath Ripp mockingly had suggested that he consult the Commissioner of Public Utilities. Even if by some improbable circumstance he secured an appointment with the commissioner, what good would ensue? Why should the commissioner revoke a policy directive of such evident importance? Unless he could be persuaded—by some instrumentality Luke was unable to define or even imagine—to issue a special directive exempting Luke from the provisions of the policy . . .

Luke chuckled hollowly, a noise which alarmed the pigeons strutting along the walk. Now what? Back to the dormitory. His dormitory privileges included twelve hours use of his cot per day, and he was not extracting full value from his expense account unless he made use of it. But Luke had no desire for sleep. As he glanced up the perspective of the towers surrounding the park he felt a melancholy exhilaration. The sky, the wonderful clear open sky, blue and brilliant! Luke shivered, for the sun here was hidden by the Morgenthau Moonspike, and the air was brisk.

Luke crossed the park, thinking to sit where a band of hazy sunlight slashed down between the towers. The benches were crowded with blinking old men and women, but Luke presently found a seat. He sat looking up into the sky, enjoying the mild natural sun-warmth. How seldom did he see the sun! In his youth he had frequently set forth on long cross-city hikes, rambling high along the skyways, with space to right and left, the clouds near enough for intimate inspection, the sunlight sparkling and stinging his skin. Gradually the hikes had spread apart, coming at ever longer intervals, and now he could hardly remember when last he'd tramped the wind lanes.

What dreams he had had in those early days, what exuberant visions! Obstacles seemed trivial, he had seen himself clawing up the list, winning a good expense account, the choicest of perquisites, unnumbered Special Coupons. He had planned a private air car, unrestricted nutrition, an apartment far above the surface, high and remote. Dreams. Luke had been victimized by his tongue, his quick temper, his obstinacy. At heart, he was no Nonconformist — no, cried Luke, never!

Luke had been born of tycoon stock, and through influence, a word here, a hint there, had been launched into the Organization on a high status. But circumstances and Luke's chronic truculence had driven him into opposition with established ways, and down the Status List he had gone: through professional scholarships, technical trainee appointments, craft apprenticeships, all the varieties of semiskills and machine operation. Now he was Luke Grogatch, flunky, unskilled, Class D, facing the final declassification. But still too vain to carry a shovel.

No: Luke corrected himself. His vanity was not at stake. Vanity he had discarded long ago, along with his youthful dreams. All he had left was pride: his right to use the word "I" in connection with himself. If he submitted to Policy Directive 6511 he relinquished this right, he combined with the masses of the Organization as a spatter of foam falls back and is absorbed into the ocean. Luke jerked nervously to his feet. He wasted time sitting here. Judiath Ripp with congerlike malice, had suggested a directive from the Commissioner of Public Utilities. Very well, Luke would obtain that directive and fling it down under Ripp's pale round nostrils.

How?

Luke rubbed his chin dubiously. He walked to a communication booth, checked the directory. As he had surmised, the Commission of Public Utilities was housed in the Organization Central Tower, in Silverado, District 3666, ninety miles to the north.

Luke stood in the watery sunlight, hoping for inspiration. The aged idlers, huddling on the benches like winterbound sparrows, watched him incuriously. Once again Luke was obscurely pleased with his purchase of

new clothes. A fine figure he cut, he assured himself.

How? wondered Luke. How to gain an appointment with the Commissioner? How to persuade him to change his views?

No inkling of a solution presented itself.

He looked at his watch: still only middle morning. Ample time to visit Organization Central and return in time to report for duty— Luke grimaced wanly. Was his resolution so feeble then? Was he, after all, to slink back into the tunnel tonight carrying the hated shovel? Luke shook his head slowly. He did not know.

At the Bramblebury Interchange Luke boarded an express highline northbound for Silverado Station. With a hiss, a whine, the shining metal worm darted forward, sliding up to Level 13, flashing north at great speed, in and out of the sunlight, through tunnels, across the inter-tower chasms, with far below the nervous seethe of the city. Four times the express sighed to a halt: at IBM University, at Braemar, at Great Northern Junction, and finally, thirty minutes out of Bramblebury, at Silverado-Central. Luke disembarked; the express slid away through the towers, lithe as an eel through water weed.

Luke entered the tenth-level foyer of the Central Tower, a vast cave of marble and bronze. Throngs of men and women thrust past him: grim striding tycoons, stamped with the look of destiny, High Echelon personnel, their assistants, the assistants to their assistants, functionaries on down the list, all dutifully wearing high-status garments, the lesser folk hoping to be mistaken for their superiors. All hurried, tense-faced and abrupt, partly from habit, partly because only a person of low status had no need to hurry. Luke thrust and elbowed with the best of them, and made his way to the central kiosk where he consulted a directory.

Parris deVicker, Commissioner of Public Utilities, had his office on Level 59. Luke passed him by and located the Secretary of Public Affairs, Mr. Sewell Sepp, on Level 81. No more underlings, thought Luke. This time I'm going to the top. If anyone can resolve this matter, it's Sewell Sepp.

He put himself aboard the lift and emerged into the lobby of the Department of Public Affairs—a splendid place, glittering with disciplined color and ornament, after that mock-antique decor known as Second Institutional. The walls were polished milk glass, inset with medallions of shifting kaleidoscopic flashes. The floor was diapered in blue and white sparkle-stone. A dozen bronze statues dominated the room, massive figures symbolizing the basic public services: communications, transport, education, water, energy and sanitation.

Luke skirted the pedestals, crossed to the reception counter, where ten young women in handsome brown and black uniforms stood with military precision, each to her six feet

of counter top. Luke selected one of these girls, who curved her lips in an automatic empty smile. "Yes sir?"

"I want to see Mr. Sepp," said Luke brazenly.

The girl's smile remained frozen while she looked at him with startled eyes. "Mr. who?"

"Sewell Sepp, the Secretary of Public Affairs."

The girl asked gently, "Do you have an appointment, sir?"

"No."

"It's impossible, sir."

Luke nodded sourly. "Then I'll see Commissioner Parris deVicker."

"Do you have an appointment to see Mr. deVicker?"

"No," I'm afraid not."

The girl shook her head with a trace of amusement. "Sir, you can't just walk in on these people. They're extremely busy. Everyone must have an appointment."

"Oh come now," said Luke. "Surely it's conceivable that—"

"Definitely not, sir."

"Then," said Luke, "I'll make an appointment. I'd like to see Mr. Sepp sometime today, if possible."

The girl lost interest in Luke. She resumed her manner of impersonal courtesy. "I'll call the office of Mr. Sepp's appointment secretary."

She spoke into a mesh, turned back to Luke. "No appointments are open this month, sir. Will you speak to someone else? Some under-official?"

"No," said Luke. He gripped the edge of the counter for a moment, started to turn away, then asked, "Who authorizes these appointments?"

"The secretary's first aide, who screens the list of applications."

"I'll speak to the first aide, then."

The girl sighed. "You need an appointment, sir."

"I need an appointment to make an appointment?"

"Yes, sir."

"Do I need an appointment to make an appointment for an appointment?"

"No, sir. Just walk right in."

"Where?"

"Suite 42, inside the rotunda, sir."

Luke passed through twelve-foot crystal doors, walked down a short hall. Scurrying patterns of color followed him like shadows along both the walls, grotesque cubistic shapes parodying the motion of his body: a whimsy which surprised Luke and might have pleased him under less critical circumstances.

He passsed through another pair of crystal portals, into the rotunda. Six levels above a domed ceiling depicted scenes of legend in stained glass. Behind a ring of leather couches, doors gave into surrounding offices; one of these doors, directly across from the entrance bore the words:

Offices of the Secretary
Department of Public Affairs

Sitting on the couches half a hundred men and women waited, with varying degrees of patience. The careful disdain with which they surveyed

each other suggested that their status was high, the frequency with which they consulted their watches conveyed the impression that they were momentarily on the point of departure.

A mellow voice sounded over a loudspeaker: "Mr. Artur Coff, please, to the Office of the Secretary." A plump gentleman threw down the periodical he had casually been examining, jumped to his feet. He crossed to the bronze and black glass door, passed through.

Luke watched him enviously, then turned aside through an arch marked *Suite 42*. An usher in a brown and black uniform stepped forward; Luke stated his business and was conducted into a small cubicle.

A young man behind a metal desk peered intently at him. "Sit down, please." He motioned to a chair. "Your name?"

"Luke Grogatch."

"Ah, Mr. Grogatch. May I inquire your business?"

"I have something to say to the Secretary of Public Affairs."

"Regarding what subject?"

"A personal matter."

"I'm sorry, Mr. Grogatch. The Secretary is more than busy. He's swamped with important Organization business. But if you'll explain the situation to me, I'll recommend you to an appropriate member of the staff."

"That won't help," said Luke. "I want to consult the Secretary in relation to a recently issued policy directive."

"Issued by the Secretary?"

"Yes."

"You wish to object to this directive?"

Luke grudgingly admitted as much.

"There are appropriate channels for this process," said the aide decisively. "If you will fill out this form—not here but in the rotunda—and drop it into the Suggestion Box to the right of the door as you go out—"

In sudden fury Luke wadded up the form, flung it down on the desk. "Surely he has five minutes free—"

"I'm afraid not, Mr. Grogatch," the aide said in a voice of ice. "If you will look through the rotunda you will see a number of very important people who have waited, some of them for months, for five minutes with the Secretary. If you wish to fill out an application, stating your business in detail, I will see that it receives due consideration."

Luke stalked out of the cubicle. The aide watched him go with a bleak smile of dislike. The man obviously had Nonconformist tendencies, he thought—probably should be watched.

Luke stood in the rotunda, muttering, "What now? What now? What now? What now? in a half-mesmerized undertone. He stared around the rotunda, at the pompous High Echelon folk, arrogantly consulting their watches and tapping their feet. "Mr. Jepper Prinn!" called the mellow voice over the loudspeaker. "The

Office of the Secretary, if you please." Luke watched Jepper Prinn walk to the bronze and black glass portal.

Then Luke slumped down in a chair, scratched his long nose, looked cautiously around the rotunda. Nearby sat a big bull-necked man with a red face, protruding lips, a shock of rank blond hair—a tycoon, judging from his air of absolute authority.

Luke arose from the couch, went to a desk placed for the convenience of those waiting. He took several sheets of paper with the Tower letterhead, unobtrusively circled the rotunda to the entrance into Room 42. The bull-necked tycoon paid him no heed.

Luke girded himself, closing his collar, adjusting the set of his jacket. He took a deep breath, then, when the florid man glanced in his direction, came forward officiously. He looked briskly around the circle of couches, consulting his papers; then catching the eye of the tycoon, frowned, squinted, walked forward.

"Your name, sir?" asked Luke in an official voice.

"I'm Hardin Arthur," rasped the tycoon. "Why?"

Luke nodded, consulted his paper. "The time of your appointment?"

"Eleven ten. What of it?"

"The Secretary would like to know if you can conveniently lunch with him at one-thirty?"

Arthur considered. "I suppose it's possible," he grumbled. "I'll have to rearrange some other business. An inconvenience—but I can do it, yes."

"Excellent," said Luke. "At lunch the Secretary feels that he can discuss your business more informally and at greater length than at eleven ten, when he can only allow you seven minutes."

"Seven minutes!" rumbled Arthur indignantly. "I can hardly spread my plans out in seven minutes."

"Yes sir," said Luke. "The Secretary realizes this, and suggests that you lunch with him."

Arthur petulantly hauled himself to his feet. "Very well. Lunch at one-thirty, correct?"

"Correct, sir. If you will walk directly into the Secretary's office at that time."

Arthur departed the rotunda, and Luke settled into the seat Arthur had vacated.

Time passed very slowly. At ten minutes after eleven the mellow voice called out, "Mr. Hardin Arthur, please. To the Office of the Secretary."

Luke rose to his feet, stalked with great dignity across the rotunda, and through the bronze and black glass door.

Behind a long black desk sat the Secretary, a rather undistinguished man, with gray hair, and snapping gray eyes. He raised his eyebrows as Luke came forward: Luke evidently did not fit his preconception of Hardin Arthur.

The Secretary spoke. "Sit down, Mr. Arthur. I may as well tell you bluntly and frankly that we think your scheme impractical. By 'we' I mean myself and the Board of Policy Evaluation—who of course have re-

ferred to the Files. First, the costs are excessive. Second, there's no guarantee that you can phase your program into that of our other tycoons. Third, the Board of Policy Evaluation tells me that Files doubts whether we'll need that much new capacity."

"Ah," Luke nodded wisely. "I see. Well, no matter. It's not important."

"Not important?" The secretary sat up in his chair, stared at Luke in wonder. "I'm surprised to hear you say so."

Luke made an airy gesture. "Forget it. Life's too short to worry about these things. Actually there's another matter I want to discuss with you."

"Ah?"

"It may seem trivial, but the implications are large. A former employee called the matter to my attention. He's now a flunky on one of the sewer maintenance tunnel gangs, an excellent chap. Here's the situation. Some idiotic jack-in-office has issued a directive which forces this man to carry a shovel back and forth to the warehouse every day, before and after work. I've taken the trouble to follow up the matter and the chain leads here." He displayed his three policy directives.

Frowningly the Secretary glanced through them. "These all seem perfectly regular. What do you want me to do?"

"Issue a directive clarifying the policy. After all, we can't have these poor devils working three hours overtime for tomfoolishness."

"Tomfoolishness?" The Secretary was displeased. "Hardly that, Mr. Arthur. The economy directive came to me from the Board of Directors, from the Chairman himself, and if—"

"Don't mistake me," said Luke hastily. "I've no quarrel with economy; I merely want the policy applied sensibly. Checking a shovel into the warehouse, where's the economy in that?"

"Multiply that shovel by a million, Mr. Arthur," said the Secretary coldly.

"Very well, multiply it," argued Luke. "We have a million shovels. How many of these million shovels are conserved by this order? Two or three a year?"

The Secretary shrugged. "Obviously in a general directive of this sort, inequalities occur. So far as I'm concerned, I issued the directive because I was instructed to do so. If you want it changed you'll have to consult the Chairman of the Board."

"Very well. Can you arrange an appointment for me?"

"Let's settle the matter even sooner," said the Secretary. "Right now. We'll talk to him across the screen, although, as you say, it seems a trivial matter—"

"Demoralization of the working force isn't trivial, Secretary Sepp."

The Secretary shrugged, touched a button, spoke into a mesh. "The Chairman of the Board, if he's not occupied."

The screen glowed. The Chairman of the Board of Directors looked out at them. He sat in a lounge chair on the deck of his penthouse at the pin-

nacle of the tower. In one hand he held a glass of pale effervescent liquid; beyond him opened sunlight and blue air and a wide glimpse of the miraculus City.

"Good morning, Sepp," said the Chairman cordially, and nodded toward Luke. "Good morning to you, sir."

"Chairman, Mr. Arthur here is protesting the economy directive you sent down a few days ago. He claims that strict application is causing hardship among the labor force: demoralization, actually. Something to do with shovels."

The chairman considered. "Economy directive? I hardly recall the exact case."

Secretary Sepp described the directive, citing code and reference numbers, explaining the provisions, and the Chairman nodded in recollection. "Yes, the metal-shortage thing. Afraid I can't help you, Sepp, or you, Mr. Arthur. Policy Evaluation sent it up. Apparently we're running short of minerals; what else can we do? Cinch in the old belts, eh? Hard on all of us. What's this about shovels?"

"It's the whole matter," cried Luke in sudden shrillness, evoking startled glances from Secretary and Chairman. "Carrying a shovel back and forth to the warehouse three hours a day! It's not economy, it's a disorganized farce!"

"Come now, Mr. Arthur," the Chairman chided humorously. "So long as you're not carrying the shovel yourself why the excitement? It works the very devil with one's digestion. Until Policy Evaluation changes its collective mind—as it often does—then we've got to string along. Can't go counter to Policy Evaluation, you know. They're the people with the facts and figures."

"Neither here nor there," mumbled Luke. "Carrying a shovel three hours—"

"Perhaps a bit of bother for the men concerned," said the Chairman with a hint of impatience, "but they've got to see the thing from the long viewpoint. Sepp, perhaps you'll lunch with me? A marvelous day, lazy weather."

"Thank you, Mr. Chairman. I'll be pleased indeed."

"Excellent. At one or one-thirty, whenever convenient for you."

The screen went blank. Secretary Sepp rose to his feet. "There it is, Mr. Arthur. I can't do any more."

"Very well, Mr. Secretary," said Luke in a hollow voice.

"Sorry I can't be of more help in the other matter, but as I say—"

"It's inconsequential."

Luke turned, left the elegant office, passed through the bronze and black glass doors into the rotunda. Through the arch into Suite 42 he saw a large bull-necked man, tomato-red in the face, hunched forward across a counter. Luke stepped forward smartly, leaving the rotunda just as the authentic Mr. Arthur and the aide came forth, deep in agitated conversation.

Luke stopped by the information desk. "Where is the Policy Evaluation Board?"

"Level 29, sir, this building."

In Policy Evaluation on Level 29 Luke talked with a silk-mustached young man, courtly and elegant, with the status classification *Plan Co-ordinator*. "Certainly!" exclaimed the young man in response to Luke's question. "Authoritative information is the basis of authoritative organization. Material from Files is collated and digested in the Bureau of Abstracts, sent up to us. We shape it and present it to the Board of Directors in the form of a daily précis."

Luke expressed interest in the Bureau of Abstracts, and the young man quickly became bored. "Grubbers among the statistics, barely able to compose an intelligible sentence. If it weren't for us—" His eyebrows, silken as his mustache, hinted of the disasters which in the absence of Policy Evaluation would overtake the Organization. "They work in a suite down on the sixth level."

Luke descended to the Bureau of Abstracts, and found no difficulty gaining admission to the general office. In contrast to the rather nebulous intellectualism of Policy Evaluation, the Bureau of Abstracts seemed work-a-day and matter-of-fact. A middle-aged woman, cheerfully fat, inquired Luke's business, and when Luke professed himself a journalist, conducted him about the premises. They went from the main lobby, walled in antique cream-colored plaster with gold scrollwork, through the small fusty cubicles, where clerks sat at projection desks scanning ribbons of words, extracting idea-sequences, emending, excising, condensing, cross-referring, finally producing the abstract to be submitted to Policy Evaluation. Luke's fat and cheerful guide brewed a pot of tea, asked questions which Luke answered in general terms, straining his voice and pursing his mouth in the effort to seem agreeable and hearty. He himself asked questions. "I'm interested in a set of statistics on the scarcity of metals, or ores, or something similar which recently went up to Policy Evaluation. Would you know anything about this?"

"Heavens no," the woman responded. "There's just too much material coming in—the business of the entire Organization."

"Where does this material come from? Who sends it to you?"

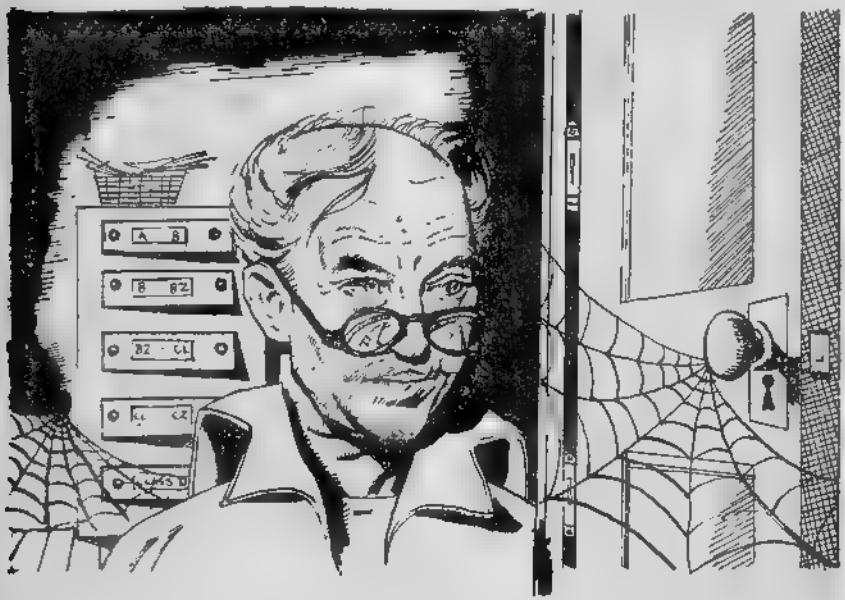
The woman made a humorous little grimace of distaste. "From Files down on Sublevel 12. I can't tell you much, because we don't associate with the personnel. They're low status: clerks and the like. Sheer automatons."

Luke expressed an interest in the source of the Bureau of Abstracts' information. The woman shrugged, as if to say, everyone to his own taste. "I'll call down to the Chief File Clerk; I know him, very slightly."

The Chief File Clerk, Mr. Sidd Boatridge, was self-important and brusque, as if aware of the low esteem in which he was held by the Bureau of Abstracts. He dismissed

Luke's questions with a stony face of indifference. "I really have no idea, sir. We file, index, and cross index material into the Information Bank, but concern ourselves very little with outgoing data. My duties in fact are mainly administrative. I'll call in one of the under clerks; he can tell you more than I can."

status. He referred to himself as a "line-tender" rather than a "file clerk," the latter apparently a classification of lesser prestige. His "line tending" consisted of sitting beside a panel which glowed and blinked with a thousand orange and green lights "The orange lights indicate information going down into the bank," said



The under clerk who answered Boatridge's summons was a short turnip-faced man with matted red hair. "Take Mr. Grogatch into the outer office," said the Chief File Clerk testily. "He wants to ask you a few questions."

In the outer office, out of the Chief File Clerk's hearing, the under clerk became rather surly and pompous, as if he had devined the level of Luke's

the file clerk. "The green lights show where somebody up-level is drawing information out—generally at the Bureau of Abstracts."

Luke observed the orange and green flickers for a moment. "What information is being transmitted now?"

"Couldn't say," the file clerk grunted. "It's all coded. Down in the old office we had a monitoring machine

and never used it. Too much else to do."

Luke considered. The file clerk showed signs of restiveness. Luke's mind worked hurriedly. He asked, "So—as I understand it—you file information, but have nothing further to do with it?"

"We file it and code it. Whoever wants information puts a program into the works and the information goes out to him. We never see it, unless we went and looked in the old monitoring machine."

"Which is still down at your old office?"

The file clerk nodded. "They call it the staging chamber now. Nothing there but input and output pipes, the monitor and the custodian."

"Where is the staging chamber?"

"Way down the levels, behind the bank. Too low for me to work. I got more ambition." For emphasis he spat on the floor.

"A custodian is there, you say?"

"An old junior executive named Dodkin, who's been there a hundred years."

Luke dropped thirty levels aboard an express lift, rode the down escalator another six levels to Sublevel 46. He emerged on a dingy landing, a low-perquisite nutrition hall to one side, a lift-attendants dormitory to the other. The air carried the familiar reek of the deep underground, a compound of dank concrete, phenol, mercaptans, a discreet but pervasive human smell. Luke realized with bitter amusement that he had returned to familiar territory.

Following instructions grudgingly detailed by the under file clerk, Luke stepped aboard a chattering man belt labeled "902—Tanks." Presently he came to a brightly-lit landing marked by a black and yellow sign: *Information Tanks: Technical Station.* Inside the door a number of mechanics sat on stools, dangling their legs, lounging, chaffering.

Luke changed to a side belt, even more dilapidated, almost in a state of disrepair. At the second junction—this unmarked—he left the man belt, turned down a narrow passage toward a far yellow bulb. The passage was silent, almost sinister in its disassociation from the life of the City.

Below the single yellow bulb a dented metal door was daubed with a sign:

Information Tanks· Staging Chamber
No Admittance

Luke tested the door and found it locked. He rapped and waited.

Silence shrouded the passage, broken only by a faint sound from the distant man belt.

Luke rapped again, and now from within came a shuffle of movement. The door slid back, a pale placid eye looked forth. A rather weak voice inquired, "Yes sir?"

Luke attemped a manner of easy authority. "You're Dodkin the custodian?"

"Yes, sir, I'm Dodkin."

"Open up, please, I'd like to come in."

The pale eye blinked in mild wonder. "This is only the staging room, sir. There's nothing here to see. The storage complexes are around to the front; if you'll go back to the junction—"

Luke broke into the flow of words "I've just come down from the File Clerk's Office; it's you I want to see."

The pale eye blinked once more, the door slid open. Luke entered the long narrow concrete-floored staging room. Conduits dropped from the ceiling by the thousands, bent, twisted and looped, entered the wall, each conduit labeled with a dangling metal tag. At one end of the room was a grimy cot where Dodkin apparently slept; at the other end was a long black desk: the monitoring machine? Dodkin himself was small and stooped, but moved nimbly in spite of his evident age. His white hair was stained but well-brushed; his gaze, weak and watery, was without guile, and fixed on Luke with an astronomer's detachment. He opened his mouth, and words quavered forth in spate, with Luke vainly seeking to interrupt.

"Not often do visitors come from above. Is something wrong?"

"No, nothing wrong."

"They should tell me if aught isn't correct, or perhaps there's been new policies of which I haven't been notified."

"Nothing like that, Mr. Dodkin, I'm just a visitor—"

"I don't move out as much as I used to, but last week I—"

Luke pretended to listen while Dodkin maundered on in obligato to Luke's bitter thoughts. The continuity of directives leading from Fedor Miskitman to Lavester Limon, to Judiath Ripp, by-passing Parris deVicker to Sewell Sepp and the Chairman of the Board, then returning down the classifications, down the levels through the Policy Evaluation Board, the Bureau of Abstracts, the File Clerk's Office—the continuity had finally ended, the thread he had traced with such forlorn hope seemed about to lose itself. Well, Luke told himself, he had accepted Miskitman's challenge; he had failed, and now was faced with his original choice. Submit, carry the wretched shovel back and forth to the warehouse, or defy the order, throw down his shovel, assert himself as a free-willed man, and be declassified, to become a junior executive like old Dodkin—who, sucking and wheezing, still rambled on in compulsive loquacity.

". . . Something incorrect, I'd never know, because no one ever tells me? From year end to year end I'm alone down here and there's no one to relieve me, and I only get to the upside rarely, once a fortnight or so, but then once you've seen the sky, does it ever change? And the sun, the marvel of it, but once you've seen a marvel—"

Luke drew a deep breath. "I'm investigating an item of information which recently reached the File

Clerk's Office. I wonder if you can help me."

Dodkin blinked his pale eyes. "What item is this, sir? Naturally I'll be glad to help in any way, even though—"

"The item dealt with economy in the use of metals and metal tools."

Dodkin nodded. "I remember the item perfectly."

It was Luke's turn to stare. "You *remember* this item?"

"Certainly. It was, if I may so, one of my little interpolations. A personal observation which I included among the other material."

"Would you be kind enough to explain?"

Dodkin would be only too pleased to explain. "Last week I had occasion to visit an old friend over by Claxton Abbey, a fine conformist, well-adapted and co-operative, even if, alas, like myself, a junior executive. Of course, I mean no disrespect to good Davy Evans, like myself about ready for the pension—though little enough they allow nowadays . . ."

"The interpolation?"

"Yes indeed. On my way home along the man belt—on Sublevel 32, as I recall—I saw a workman of some sort—perhaps an electrical technician - toss several tools into a crevice on his way off-shift. I thought, now there's a slovenly act—disgraceful! Suppose the man forgot where he had hidden his tools? They'd be lost! Our reserves of raw metallic ore are very low—that's common knowledge and every year the ocean water becomes weaker and more dilute. That man had no regard for the future of Organization. We should cherish our natural resources, do you not agree, sir?"

"I agree, naturally, But—"

"In any event, I returned here and added a memorandum to that effect into the material which goes up to the Assistant File Clerk. I thought that perhaps he'd be impressed and say a word to someone with influence—perhaps the Head File Clerk. In any event, there's the tale of my interpolation. Naturally I attempted to give it weight by citing the inevitable diminution of our natural resources."

"I see," said Luke. "And do you frequently include interpolations into the day's information?"

"Occasionally," said Dodkin, "and sometimes, I'm glad to say, people more important than I share my views. Only three weeks ago I was delayed several minutes on my way between Claxton Abbey and Kittsville on Sublevel 30. I made a note of it, and last week I noticed that construction has commenced on a new eight-lane man belt between the two points, a really magnificent and modern undertaking. A month ago I noticed a shameless group of girls daubed like savages with cosmetic. What a waste! I told myself, what vanity and folly! I hinted as much in a little message to the Under File Clerk. I seem to be just one of many with these views, for two days later, a general order discouraging these petty vanities was issued by the Secretary of Education."

"Interesting," Luke muttered. "Interesting indeed. How do you include

these 'interpolations' into the information?"

Dodkin hobbled nimbly to the monitoring machine, beckoned. "The output from the tanks comes through here. I print a bit on the typewriter and tuck it in where the Under Clerk will see it."

"Admirable," sighed Luke. "A man with your intelligence should have ranked higher in the Status List."

Dodkin shook his placid old head. "I don't have the ambition nor the ability. I'm fit for just this simple job, and only barely. I'd take my pension tomorrow, only the Chief File Clerk asked me to stay on a bit until he could find a man to take my place. No one seems to like the quiet down here."

"Perhaps you'll have your pension sooner than you think," said Luke.

Luke strolled along the glossy tube, ringed with alternate pale and dark refractions, like a bull's-eye. Ahead was motion, the glint of metal, the mutter of voices. The entire crew of Tunnel Gang #3 stood idle and restless.

Fedor Miskitman waved his arm with uncharacteristic vehemence. "Grogatch! At your post! You've held up the entire crew!" His heavy face was suffused with pink. "Four minutes already we're behind schedule."

Luke strolled closer.

"Hurry!" bellowed Miskitman. "What do you think this is, a blasted promenade?"

If anything Luke slackened his pace. Fedor Miskitman lowered his big bullhead, staring balefully. Luke halted in front of him.

"Where's your shovel?" Fedor Miskitman asked.

"I don't know," said Luke. "I'm here on the job. It's up to you to provide tools."

Fedor Miskitman stared unbelievingly. "Didn't you take it to the warehouse?"

"Yes," said Luke. "I took it there. If you want it, go get it."

Fedor Miskitman opened his mouth. He roared, "Get off the job!"

"Just as you like," said Luke. "You're the foreman."

"Don't come back!" bellowed Miskitman. "I'll report you before the day is out, you won't gain status from me, I tell you that "

" 'Status'?" Luke laughed. "Go ahead. Cut me down to junior executive. Do you think I care? No. And I'll tell you why. There's going to be a change or two made. When things seem different to you, think of me."

Luke Grogatch, Junior Executive, said good-by to the retiring custodian of the staging chamber. "Don't thank me, not at all," said Luke. "I'm here by my own doing. In fact . . . well, never mind all that. Go upside, sit in the sun, enjoy the air."

Finally Dodkin, in mingled joy and sorrow, hobbled for the last time down the musty passageway to the chattering man belt.

Luke was alone in the staging chamber. Around his ears hummed the near-audible rush of information.

From behind the wall came the sense of a million relays clicking, twitching, meshing; of cylinders and trace tubes and memory lanes whirring with activity. At the monitoring maching the output streamed forth on a reel of yellow tape. Nearby rested the typewriter.

Luke seated himself. His first interpolation—what should it be? Freedom for the Nonconformists? Tunnel-gang foremen to carry tools for the entire crew? A higher expense account for junior executives?

Luke rose to his feet and scratched his chin. Power. To be subtly applied. How should he use *it*? To secure rich perquisites for himself? Yes, of course, this he would accomplish, by devious means. And then—what?

Luke thought of the billions of men and women living and working in the Organization. He looked at the typewriter. He could shape their lives, change their thoughts, disorganize the Organization. Was this wise? Or right? Or even amusing?

Luke sighed. In his mind's eye he saw himself standing on a high terrace overlooking the city. Luke Grogatch, Chairman of the Board. Not impossible, quite feasible. A little at a time, the correct interpolations—Luke Grogatch, Chairman of the Board. Yes. This for a starter. But it was necessary to move cautiously, with great delicacy . . .

Luke seated himself at the typewriter and began to pick out his first interpolation.

THE END

IN TIMES TO COME

Beginning with next month's issue, the November, 1959, Astounding Science Fiction starts a process of growth that will proceed in stages over the next year or so.

As many of our readers are already aware, we have been conducting a research test of the effect of a 50¢ a copy price. In approximately one-quarter of the United States, the price has been 50¢ a copy for some months now; only by comparing the sales of the *same* issue, the *same* month, could we determine reader acceptance of a higher price. The answer, as given by what you-as-readers *do*, is that you appreciate that the value of a dollar, in terms of real goods, has decreased.

(*Continued on page* 93)

BLOOD FROM TURNIPS, ...ALMOST!

BY WILLIAM C. BOYD

All life on this planet is related—and at very fundamental levels, this relationship is proving to be much closer than has been appreciated.

A SCIENCE FACT ARTICLE

LET us hope you won't, and the chances are against it, but if you should be hit by an automobile tomorrow, and be wheeled into the transfusion room of a big hospital, the doctors wouldn't start this life-saving procedure until they had made certain checks. First of all, they would determine your blood type, second, they would choose a pint of blood from their blood bank which bore the same designation as the one they found applied to your blood. Third, they would mix the liquid part of your blood with the red blood corpuscles of the banked blood, and vice versa, to make sure that in neither case were the red corpuscles caused to stick together, or as they say, agglutinate. Only then would the vital fluid begin to be allowed to trickle into your veins. There are only four kinds of blood that matter much in an emergency transfusion, but they matter a great deal.

Nearly sixty years ago Dr. Karl Landsteiner, then working in Vienna, discovered that people could be divided into groups, according to what happened when their bloods were mixed. In some cases nothing happened; the red cells remained free and separate, and the mixture looked like normal blood In other cases the red cells stuck together in clumps —agglutinated—and the mixture had quite an abnormal appearance. If

this happens in the body, the results are bad. When two bloods could be mixed without agglutination, they were said to belong to the same group; if agglutination followed mixing two bloods, they were said to be of different groups. The four groups of human blood are designated as O, A, B, and AB.

In order to determine what group a person's blood belongs to, it is not necessary to mix his blood with bloods of all the other four groups. We make use of Landsteiner's discovery that the agglutination resulting from mixing incompatible bloods is the consequence of the presence in the liquid part of human blood—plasma—of two *agglutinins*—agglutinins cause agglutination, naturally—anti-A and anti-B. Anti-A, as its name suggests, causes red cells containing A to agglutinate; anti-B similarly affects cells containing B. It happens that the plasma of a person of group A contains anti-B—it couldn't well contain anti-A—group B plasma contains anti-A, AB plasma contains neither, and group O plasma contains both.

So to determine the blood group of a person, all you need is plasma from a person of group A and plasma from a person of group B. One of the other of these, both, or neither, may agglutinate the red cells of a prospective blood donor, and this set of four possible outcomes corresponds to the four blood groups, as you can easily see. Actually, instead of plasma, which only remains liquid if one adds to the blood something to prevent clotting, serum, which is the clear fluid that separates from clotted blood, and which is equivalent to plasma minus the clotting constituents, is usually employed.

For many years, use of human serum from persons of groups A and B was the only way of determining blood groups. Then in 1921 my teacher, Dr. S. B. Hooker, showed that if you injected blood of group A into a rabbit, the rabbit formed an anti-A which behaved like the anti-A in human group B serum; similarly for B. Dr. Hooker published his observations, only to be told diffidently by Dr. Landsteiner, who was now in this country, that he had noticed it, too. So he had, and published it—in a footnote to a paper on a different subject!

Now the use of human serum as a reagent in blood grouping has its disadvantages. For one thing, the agglutinin from just any old blood is not strong enough, and will give you incorrect diagnosis for certain bloods. For another, people are not so fond of giving their blood that you are likely to be able to get hold of enough human anti-A and anti-B when you need a lot in a hurry.

Our armed forces had a terrible time in this respect when the United States got into World War II. It is not easy to produce enough anti-A and anti-B from rabbits; the preparation procedure is rather complicated. Obviously a cheaper and more readily obtained substitute would be nice.

Years ago it had been observed that the seeds of certain plants contained substances which would agglutinate human red cells. In fact these plant agglutinins were discovered before it was known that animals, including man, could produce them. The only trouble involved in using the plant agglutinins to determine blood groups was that they were nonspecific, that is, they agglutinated all red cells irrespective of their blood group. Not only this, they also agglutinated the red cells of animals and of all other species.

Well, not entirely. Landsteiner had found that an extract of lentils, for example, agglutinated the red cells of the rabbit, but had no effect on the red cells of the pigeon. Ricin, the agglutinin from the poisonous castor bean, agglutinated pigeon blood just fine, but had little effect on horse blood. So a certain degree of specificity had been found, but it was species specificity.

One day late in 1945 I was looking at the little table in which Landsteiner reported these results, and for some reason was seized with the notion that if species specificity could exist in seeds, perhaps individual specificity could, too. In other words, if some seeds could distinguish between the bloods of the rabbit and the pigeon, perhaps others could distinguish between human bloods of groups A and B. It seemed worth trying. Turning to my assistant, I said "Go out to the grocery and buy a pound of lima beans." Why I said lima beans, and not kidney beans or pea beans, I shall never know. But it was lucky that this is what I did say.

For when we ground up the lima beans with salt solution, filtered off the solid material, and mixed the resulting extract with human red cells of various groups, we found that cells of groups A and AB were agglutinated, and cells of Groups O and B were not. In other words, the lima beans contained an anti-A.

What happened next provides an important lesson in research technique. For it is not enough to make a discovery. It is also necessary to recognize its importance. But even these two alone are not enough. It is necessary to tell others about it, or as scientists say, to publish. But that's just what I didn't do, or almost didn't do. Looking back on it, I suppose there were a number of factors that were responsible for behavior so peculiar in a scientific worker. The discovery had come so easily—the whole process of thinking up the idea and successfully testing it took perhaps two hours—that I felt there was something fishy about it. Surely this couldn't be an important observation; they generally took years to make. Also, we were very busy trying to finish up a project that had been started during the war, and my laboratory was short-handed as a result of the war. Then, too, I was just starting to revise my book on Immunology, a formidable task.

So I inserted a rather casual reference to the observation in the revised Immunology, which came out in

1947, and only got around to writing up the result of this test, and of the tests of other seeds, in a paper which appeared in 1949. But in the meantime, as generally happens when you delay publication, somebody else had made a similar observation, and published it. A Finnish worker named Renkonen published a paper in 1948 in which he reported that a number of seeds contain agglutinins specific for certain blood groups. (His observations did not happen to include lima beans.) Whether the mention in my textbook is explicit enough to constitute a claim for "priority" has never been discussed. But this is unimportant We don't know the reason for it, and it may be merely an accident, but it was observed that nearly all the plants containing useful agglutinins belonged to the botanical family of legumes, the family that includes beans, peas, clover, vetch, and many other useful plants.

As so often happens in science, these reports began to arouse interest, slowly at first, but then more rapidly, and other researchers got into the act. Seeds were found which contained anti-H, an agglutinin which reacts with red cells of group O and A_2. (There are two varieties of A, A_1 and A_2.) A worker in India found an agglutinin specific for A_1. A sort of almost-specific anti-B was found by a German worker in the seeds of the Japanese pagoda tree. Brazilian workers found an anti-N in a tropical South American plant. The blood factors M and N, which I have not mentioned so far, are of no importance for routine blood transfusion, but of great interest in legal medicine and anthropology.

Then we found anti-N in a totally different plant—the first was a sort of vine, the second is an ornamental tree—but discovered, again, that a Finnish worker—a pupil of Renkonen—had just reported it. Since then we have found an agglutinin, the exact nature of which we are not sure of, in the ordinary peanut. It looks as if this could go on and on. We have tested over a thousand species of seeds, and thousands remain to be tested Most of those examined are of no interest; either they don't contain any agglutinins, or they agglutinate human red cells of all groups—in other words, are nonspecific

The discovery of an anti-A—and several others were found by other workers—indicated that the desired goal of a cheap substitute for human serum as a blood-grouping reagent was partly at hand. Lima bean extract used in place of human anti-A in routine blood-grouping work, costs about 0.005 *cents* per cubic centimeter, as opposed to one dollar per cubic centimeter for human serum If a good anti-B from plants were available, the use of A-B blood grouping reagents from human sources would soon cease.

When we got around to testing a large number of varieties of lima beans, we found out how lucky we had been. For the seeds of some varieties don't contain any agglutinins

for A and AB. They don't agglutinate human red cells at all. If we had got hold of one of these negative varieties that first day, we would have promptly dropped the whole idea.

The question now came up, what accounts for the presence of these agglutinins in the bean, and is the tendency to have them inherited? The trait obviously breeds true, for seeds of the same variety always behave the same. What would happen if you crossed a positive bean with a negative? Would the presence and absence of the agglutinin behave like brown eyes and blue eyes in man, in other words, would it follow Mendel's laws of heredity? Work was started in an attempt to answer this question in collaboration with Professor Blakeslee at Smith College, but before an answer was obtained Professor Blakeslee died It looked as if it was going to be difficult to solve this problem.

Then came an unexpected and most welcome development. Dr. Warmke, Officer in Charge at the United States Agricultural Experiment Station in Puerto Rico, who knew about this work and who had heard of Professor Blakeslee's death, wrote to me, suggesting that I might like to continue the work on the genetics of the agglutinins with him. He pointed out that most of the plants in which blood group specific agglutinins had been discovered were tropical plants, and that at his experiment station they had ideal facilities for growing tropical plants.

Naturally this idea appealed very much. It was just a question of finances. Puerto Rico is one thousand miles southeast of Florida, and the only practical way of getting there is by air, which is not cheap. How would I manage this? Fortunately, it proved easier than we had expected to obtain a research grant from the National Institutes of Health, which not only provided for the technical help and chemicals—counting beans and other seeds as chemicals—which would be needed, but provided sufficient funds to allow me to visit the experiment station in Puerto Rico once or twice a year. We were off.

My first visit to Puerto Rico took place in January, 1957. When I left Boston there was snow on the ground and it was mid-winter, although not unusually cold. While I was away the temperature dropped to twenty below for a record cold snap. In the meantime I stepped off the plane in San Juan into a tropical world of brilliant sunshine. It's never cold in Puerto Rico, and it's also never very hot. The climate is about as close to ideal as you'll ever see. The airport was surrounded by vegetation of the most brilliant green, the sort of colors you see in the Nile valley. Palm trees waved their graceful heads in the gentle breeze. San Juan, one of the most picturesque cities under the American flag, consists mainly of buildings of the most amazing shades of pink, orange, gray, yellow, and white. It simply gleams under the blue sky. And just at your elbow is the warm Carribean.

At the other end of the island, Mayagüez, where the experimental station is located, it is, if possible, even more beautiful; it is certainly more like a Spanish colonial town. It is surrounded by the most beautiful countryside; green hills planted with coffee and bananas. Lower down are endless fields of sugar cane. The vegetation is very varied, as a result of wide ranges in the rainfall. Within a few hours you can go from semi-tropical rain forest to arid regions which remind you of west Texas But the most interesting feature of the arid regions to me was something that might not strike the casual observer. A high proportion of the plants growing here, a high proportion even of the weeds, are legumes. Who knows what strange agglutinins are concealed beneath their unprepossessing exteriors?

From the Spanish atmosphere of Puerto Rico, which has been modified some, but not a great deal, by their sixty-year ownership by the United States, I stepped, when I entered the grounds of the experiment station, into typical American hospitality. The North Americans in a tropical possession—they call them "continentals" down there—are not wasting their time pining away for the States they left behind. They are go-getters, and the Puerto Ricans who work with them are go-getters, too. No attitude of *mañana* here.

The day after I arrived we were having conferences on what plants to attempt to grow, what plants to attempt to cross for the genetic studies. Soon a complete research program was outlined. Then, they had a collection of seeds of tropical plants, sent them as part of their program of screening new plants for possible economic value in Puerto Rico and other tropical areas, and they could send us samples of them to test. "Fine," I said, mentally picturing a few dozen samples of new legumes, "send them on. About how many species do you think it will be?" "Oh, maybe a hundred," was the reply. They sent us more than three thundred, then another three hundred!

Our genetic studies are just getting under way. It takes time to plan and carry out a research program. But within a year, probably, we shall begin to know whether the inheritance of these strange substances follows the ordinary laws of genetics or not. We anticipate that it will, but it never pays to be sure of the answer in advance. If you knew the answer to every experiment before you did it, you wouldn't have to do any experiments.

Suppose we do show that the plant agglutinins, for which I have invented the name *lectins*, are inherited as we expect. How about the first question raised, why are these substances present in the plant at all? After all, the plant never comes into contact with human blood.

This is a really puzzling question, and for a time we had no glimmer of an answer. The anti-A and anti-B of human serum belong to the class of substance called *antibodies*, many of which help you to resist disease—

diphtheria antitoxin is a good example of an antibody—and most of which are formed in response to the stimulus of a foreign substance, called an *antigen,* which gets into your system, as when you have an infectious disease. It is not certain that human anti-A and anti-B are formed in response to the stimulus of an antigen, but this remains a possibility. But certainly our plants have never been exposed to the antigens of human blood. Why do they possess these pseudo-antibodies which I call lectins?

Recently we have begun to get some ideas as to a possible answer. One of the plants whose seeds were sent us from Puerto Rico is a tree called *Bauhinia purpurea,* named for two French herbalists called Bauhin. In these seeds we found an anti-N lectin, which was interesting and important enough, but we also found something even more suggestive. When we put the seed proteins in cellophane bags and put the bags in distilled water—this is called dialysis—a procedure which we knew would let small molecules like sodium chloride and simple sugars diffuse out, but would keep the proteins, which are the active materials in, we found that the proteins remaining had acquired a new agglutinating property which enabled them to agglutinate all human red cells. It almost looked as if something had been lost from the extract which ordinarily prevented this from happening, and whose presence made the *Bauhinia* lectin specific for N.

Simple enough to test. We concentrated the water into which the diffusible stuff had gone, by a process of drying from the frozen state. We obtained a brown amorphous material which when exposed to air took up water rapidly. A pinch of this material, added to the dialyzed *Bauhinia* protein, made it specific for N again. Our surmise was correct.

Chemical tests on the brown amorphous stuff convinced us that it contained a lot of carbohydrate—sugars of one sort or another. But the job of finding out what sugars, in what amounts were there, would be a formidable one. We quailed at the prospect. But there is often more than one way of skinning a cat. We took a collection of sugars off our shelves, and started to see if any of them would also make the dialyzed protein N-specific again. Sure enough, a number of sugars, none of them the kind you buy at the corner grocery store, would do this, as well as, or better than, the diffusible material Not only that, but one of these sugars was the component of milk sugar known as galactose, and the others all contained galactose as one constitutent. Evidently the part of the protein molecule which caused all human red cells to stick together reacts specifically with galactose and galactose-containing sugars, and by the same token the chemical grouping on the human red cell with which it reacts contains galactose.

It was already known that the human blood group antigens A and

B contain galactose, which is, in fact, a common constituent of the carbohydrates of the human body. The specificity of complex carbohydrates depends to a great extent upon what simple sugar is at the end of the chains of sugar of which they are composed. We accordingly suspected that the unknown blood-group antigen with which our dialyzed *Bauhinia* protein reacts terminates in a unit of galactose. But this can't be the whole story, for work by Morgan, Kabat and others suggests that the blood group B antigen also terminates in galactose and our new antigen is not the same as B. There is still quite a bit to be found out.

Knowing that this *Bauhinia* protein combines specifically with certain sugars, and that such sugars are present in *Bauhinia* seed, we can begin to make a guess as to why these proteins agglutinate human red cells. They agglutinate human red cells because they combine specifically with cell antigens which contain certain sugars, especially certain sugars as terminal groups. Our question has been changed to: Why do these plant proteins combine specifically with certain sugars? Towards the answer to this question we can at least make a plausible guess.

Plants have to store up in their seeds food materials for the young plant which is produced when the seed sprouts. These materials include proteins, fats, and carbohydrates The carbohydrate is in the form of starch in the case of seeds such as corn and wheat, but in the case of *Bauhinia* it is not. *Bauhinia* seeds contain no starch — a big molecule — but evidently contain in place of it smaller molecules of simpler sugars, small enough to pass through the pores of cellophane. One of these sugars is evidently galactose or a sugar containing galactose, most likely the latter. Now if a plant wants to deposit carbohydrates in its seeds, it seems reasonable that it will need some mechanism for getting the carbohydrate there and possibly keeping it there after it arrives. For this purpose a protein with a specific affinity for the carbohydrate in question would seem ideal.

So our present, tentative, picture of the role of these blood-group-specific proteins in plant seeds is that they are "carbohydrate catchers," aiding the plant to get certain carbohydrates into the seed and keep them there. If this idea is correct, the combination of the proteins with certain human blood group antigens, with resulting agglutination of red cells, is accidental, but the specific affinity of the protein for certain carbohydrates is not. Since the number of possible carbohydrates is far from infinite, it is not surprising that cases of such accidental similarity occur, and we may expect more of them to turn up. Merely for that reason we feel it is worth the labor of testing the second huge batch of seeds they recently sent us from Puerto Rico.

Contrary to what might have been

thought some years ago, it is not surprising that blood group antigens should be constructed of some of the same sugars that certain plants deposit in their seeds as reserve material for their offspring. Nature is very conservative, and once the process of evolution has hit upon a way of doing something, it is likely to persist in doing it that way unless there are very strong forces tending to make a new method preferable.

For example, even bacteria need many of the same vitamins required by man. The reason, we now know, is that these vitamins form part of enzyme systems which are required in the processes of converting food into energy. (Enzymes are protein catalysts; that is, they change the rate of a chemical reaction without being permanently changed themselves.) Of course some bacteria can manufacture all the vitamins they need, and do not require any from outside But then all animals except man, other primates, the guinea pig, and a few others can manufacture their own vitamin C.

It is not surprising that once evolution had hit upon certain sugars as being well adapted for purposes of energy storage and so on, these same sugars would continue to be used as higher forms of life evolved, even though the final product served a very different purpose. It is as if an architect, building huts for farmers, got accustomed to using wood, and when commissioned to build a palace for the king, made it also of wood, and never thought of using stone or brick. And in fact the Japanese succeeded in building some very beautiful palaces out of wood.

In case you are thinking this is another fine example of the impractical, purely theoretical work which results when scientists are allowed to spend the government's money, forget it. In the first place, the theoretical interest of these results will undoubtedly prove the most valuable thing about them. This is always true in research. But the lectins have practical value as well, even commercial value, which is proved by the fact that several of them are already on the market for sale to routine hospital laboratories, and you may expect more of them, *Bauhinia* anti-N for example, to come into use.

I am pleased to report that my suggested term "lectin" seems to have passed into the language. However, since I have no patents covering any of the lectins I discovered or developed I brought into routine use several which I did not discover —I have not received a penny from any of the commercial applications, nor am I likely to. My failure to apply for patents is not primarily due to the traditional taboo against taking out patents on medical discoveries For it is always possible to assign patents on medical discoveries to a nonprofit organization which simply licenses commercial firms to manufacture and dispense the stuff, and which is careful not to award a li-

cense to firms with inferior standards. Patents on methods of plasma fractionation, for example, were handled in this way.

I suppose my main reason for not applying for patents was similar to my reason for not publishing in detail more promptly; I didn't appreciate the importance of the discovery. I never really thought lectins would be of any particular use, and at the time I had no idea of their theoretical interest. The idea of doing blood grouping with plant extracts seemed so bizarre to me that I couldn't imagine that it wouldn't seem bizarre to everybody else.

But I don't regret it. It is time-consuming and expensive to take out a patent, and at the time nobody would have offered to help me financially. The idea, bizarre or not, would not have been popular. In fact, certain government agencies had just put into effect regulations that blood-grouping reagents could be made only from human blood. But let us suppose that somehow I had succeeded in getting patents on the lectins I discovered, or possibly on the whole idea of blood grouping by group specific plant proteins. I would then have been stuck with the licensing authority, or would have had the responsibility of finding a suitable nonprofit agency to turn it over to, and instead of doing new and interesting work in the laboratory, I might now be sitting at a desk trying to decide who ought to have a license, and who ought not. I like it better this way.

THE END

IN TIMES TO COME

(*Continued from page* 83)

There's a sign in a New York restaurant I saw that expresses the problem They'd just raised the price of a cup of coffee to 15¢. The sign said: "Our Coffee is the same price it always was—one subway ride." Subway fares had also recently gone to 15¢.

In November, the cover price goes to 50¢. However, subscription prices won't go up until a bit later . . . so if you're spry, you can save something on that.

In January, Astounding will be thirty years old—and the January issue will contain an additional, complete section of "slick" paper, wherein we will carry photographically illustrated articles of straight science.

And, probably in February, we'll start another process. Tell you about that one later, though, when I have more space!

THE EDITOR.

"Not legally responsible, of course..."

THAT SWEET

BY MARK PHILLIPS

Conclusion. *It was tough enough for the FBI men to have to hunt out a telepathic spy...but when the only known telepath-locator was a more than somewhat peculiar little old lady who had to be humored...*

Illustrated by Freas

SYNOPSIS

Once upon a time, there will be an agent of the United States Federal Bureau of Investigation named KENNETH MALONE, *probably the luckiest and—possibly—the best agent that the Department of Justice has ever had the good fortune to employ.*

In 1971, Malone, at twenty-eight, has been in the Bureau for three years. During that time, he has managed, somehow, to break up a smuggling gang, track down a big-time counterfeiting ring, and nail three notorious kidnapers—practically on his own. Malone himself believes fervently that his successes can be attributed solely to luck, but his superiors don't view his abilities in that light.

ANDREW J. BURRIS, *Director of the FBI, is fully convinced that Kenneth Malone can handle any case he is given. Therefore, he hands Malone one of the toughest cases that the Bureau has come up against to date.*

A Westinghouse scientist, DR. THOMAS O'CONNOR, *who has been working with psionic phenomena, has built a device which will detect telepathic interference with a human mind. Unfortunately, it will not locate a telepath; it will only reveal that another's mind is being tampered with. O'Connor reports to Burris that his machine has detected the fact that the scientists working on Project Isle—research on a nonrocket space drive—at the United States Laboratories at Yucca Flats, Nevada, are being spied upon by a telepathic mind. O'Connor can demonstrate that the scientists are being tapped, but he can neither locate nor identify the telepath who is doing the tapping.*

Director Burris, realizing that the spy must be found, decides that there is only one practical way to detect a telepath—use another telepath.

And that's the job he gives to Kenneth Malone.

LITTLE OLD LADY

Malone's assignment consists of (A) finding a telepath who can be employed usefully by the FBI, and (B) using that telepath to help the FBI locate the spy who is reading the minds of the scientists at Project Isle.

Malone has only one hint: the fact that the only telepath O'Connor and the other Westinghouse scientists had been able to find was an imbecile. It would be handy for Malone if he could have used the imbecile, but he is, unfortunately, dead—which means Malone has to find another. The imbecile was discovered because he had a habit of phonographically repeating

the thoughts of those around him, so Malone decides to have all the mental defectives in the United States investigated.

While the intense investigation is being carried out by his subordinates, Malone sits in his Washington office trying to correlate piles of utterly useless reports. The lead is a dead end; there are no more mentally defective telepaths in the United States, and the hard-working FBI seems to be able to turn up absolutely nothing. Meanwhile, the scientists of Project Isle are having their brains picked with horrifying regularity.

Then Malone gets a call from THOMAS BOYD, *the Agent-in-Charge of the FBI office in San Francisco. Boyd can't say too much over the telephone, which may be tapped, but it is obvious that he has found a telepath—one who is* not *mentally subnormal.*

Malone takes the next cross-continental stratoliner to San Francisco, and is met by Boyd, a heavy-set man with a close-cropped beard who has always reminded Malone of someone —but Malone has never been able to quite place who it is. Boyd drives Malone from the airport to Bayview Neuropsychiatric Hospital.

At the hospital, Malone is introduced to DR. WILLARD HARMAN, *the rather nervous psychiatrist who is in charge of Bayview. Dr. Harman, aware that the FBI is looking for telepaths—although he does not know the reason why—has communicated with the San Francisco office and told Tom Boyd that he has a patient who claims to be a telepath. After investigating, Boyd immediately called Malone.*

The patient is a MISS ROSE THOMPSON, *a pleasant, elderly spinster in her sixties. She's a telepath, all right, as Malone quickly determines —and she's not an imbecile or a moron. She is, as Malone succinctly puts it, "battier than a cathedral spire." Although she is a little bit flighty, she is quite rational—the only trouble is that she suffers under the fixed delusion that she is Elizabeth Tudor* –QUEEN ELIZABETH I OF ENGLAND.

She claims, in fact, to be immortal, although the records prove beyond all doubt that she is only Miss Rose Thompson, who has been insane since her late teens.

Malone contacts FBI Director Burris in Washington, and Burris gives Malone strict orders that "Her Majesty" is to be taken care of and given every consideration. Although there is hope that the FBI may uncover a sane telepath, they have not done so thus far, and until they do, the self-styled Queen is their only hope of finding the spy who is probing the secrets of Project Isle.

Malone gets a court order to take the Queen from Dr. Harman's care. The psychiatrist doesn't mind at all. Indeed, he seems to be almost hysterically glad to get rid of her since she has proved beyond doubt that she is *a telepath; her presence apparently disturbs him deeply.*

In order to take proper care of Her Majesty, Malone hires a psychiatric

nurse from Bayview to accompany the Queen. MISS BARBARA WILSON, *who has developed a deep affection for the old lady. But Malone's main reason is that he, personally, has developed a deep affection for the blond and beautiful Miss Wilson.*

Malone should have foreseen the inevitable result of Her Majesty's release. She is fully aware, of course, that the FBI needs her and needs her badly, and she is determined to take every possible advantage of the fact. She insists on being treated as a queen—including proper titles and complete court etiquette. She knights Malone and Boyd, and makes them permanent members of her entourage, with the promise of a dukedom for each of them as soon as Parliament convenes. The nurse, Miss Wilson, has also been honored by the title of "Lady Barbara."

But her most dictatorial and painful command, at least from the point of view of the two FBI men, is that the group shall henceforth wear Sixteenth Century costume—ruffs and velvets and lace filigree, doublet and hose, and bejeweled robes. Since she threatens to be of no help whatsoever unless they comply with her wishes, both men reluctantly agree.

And it is not until Sir Thomas Boyd is all rigged up in full Elizabethan costume that Sir Kenneth Malone realizes just who it is that Boyd has reminded him of all these years. Tom Boyd is a dead ringer for Henry VIII.

Her erratic whims having been temporarily satisfied, Her Majesty informs the FBI agents that there is another telepath at Desert Edge Sanitarium, a mental hospital just outside Las Vegas, Nevada. Since she now has the whole FBI comfortably supine beneath her autocratic thumb, she insists that the second telepath, WILLIAM LOGAN, *be released from his durance vile.*

At the sanitarium itself, the FBI agents run into a balky psychiatrist armed with suspicious looks. It is not, after all, very common for members of the Federal Bureau of Investigation to try to spring mentally disturbed patients from hospitals—especially when the agents themselves are all decked out in Elizabethan regalia.

The psychiatrist, DR. FREDERIC DOWSON, *is reluctant to release Logan, in spite of the court order which Malone is carrying. In order to dispel Dr. Dowson's doubts as to the authenticity of Malone's identification, Malone insists that Dowson call FBI Director Burris on the visiphone. Dr. Dowson complies, and has a discussion with Burris on the advisability of allowing Logan to be taken from the hospital.*

While they are talking, Queen Elizabeth I sidles quietly up to Malone and taps him on the shoulder. "Sir Kenneth," she whispers, "I know exactly where your telepathic spy is. And I know who *he is."*

Malone, shocked, whispers: "Who? Where?"

"Right there," says the Queen, pointing.

Her finger is aimed directly at the glowing visiphone image of Andrew J. Burris, Director of the FBI.

PART 2

V

MALONE opened his mouth, but nothing came out. Not even air. He wasn't breathing. He stared at Burris for a long moment, then took a breath and looked again at Her Majesty. "The spy?" he whispered.

"That's right," she said.

"But that's—" He had to fight for control. "That's the head of the FBI," he managed to say. "Do you mean to say he's a spy?"

Burris was saying: ". . . I'm afraid this is a matter of importance, Dr. Dowson. We cannot tolerate delay. You have the court order. Obey it."

"Very well, Mr. Burris," Dowson said with an obvious lack of grace. "I'll release him to Mr. Malone immediately, since you insist."

Malone stared, fascinated. Then he turned back to the little old lady. "Do you mean to tell me," he said, "that Andrew J. Burris is a telepathic spy?"

"Oh, dear me," Her Majesty said, obviously aghast. "My goodness gracious. Is that Mr. Burris on the screen?"

"It is," Malone assured her. A look out of the corner of his eye told him that neither Burris, in Washington, nor Dowson or any others in the room, had heard any of the conversation. Malone lowered his whisper some more, just in case. "That's the head of the FBI," he said.

"Well, then," Her Majesty said, "Mr. Burris couldn't possibly be a spy, then, could he? Not if he's the head of the FBI. Of course not. Mr. Burris simply isn't a spy. He isn't the type. Forget all about Mr. Burris."

"I can't," Malone said at random. "I work for him." He closed his eyes. The room, he had discovered, was spinning slightly. "Now," he said, "you're sure he's not a spy?"

"Certainly I'm sure," she said, with her most regal tones. "Do you doubt the word of your sovereign?"

"Not exactly," Malone said. Truthfully, he wasn't at all sure. Not at all. But why tell that to the Queen?

"Shame on you," she said. "You shouldn't even think such things. After all, I am the Queen, aren't I?" But there was a sweet, gentle smile on her face when she spoke; she did not seem to be really irritated.

"Sure you are," Malone said. "But—"

"Malone!" It was Burris' voice, from the phone. Malone spun around. "Take Mr. Logan," Burris said, "and get going. There's been enough delay as it is."

"Yes, sir," Malone said. "Right away, sir. Anything else?"

"That's all," Burris said. "Good night." The screen blanked.

There was a little silence

"All right, doctor," Boyd said. He looked every inch a king, and Malone knew exactly what king. "Bring him out."

Dr. Dowson heaved a great sigh. "Very well," he said heavily. "But I want it known that I resent this high-handed treatment, and I shall write a

letter complaining of it." He pressed a button on an instrument panel in his desk. "Bring Mr. Logan in," he said

Malone wasn't in the least worried about the letter. Burris, he knew, would take care of anything like that. And, besides, he had other things to think about.

The door to the next room had opened almost immediately, and two husky, white-clad men were bringing in a strait-jacketed figure whose arms were wrapped against his chest, while the jacket's extra-long sleeves were tied behind his back. He walked where the attendants led him, but his eyes weren't looking at anything in the room. They stared at something far away and invisible, an impalpable shifting nothingness somewhere in the infinite distances beyond the world.

For the first time, Malone felt the chill of panic. Here, he thought, was insanity of a very real and frightening kind Queen Elizabeth Thompson was one thing—and she was almost funny, and likable, after all. But William Logan was something else, and something that sent a wave of cold shivering into the room.

What made it worse was that Logan wasn't a man, but a boy, barely nineteen. Malone had known that, of course—but seeing it was something different. The lanky, awkward figure wrapped in a hospital strait jacket was horrible, and the smooth, unconcerned face was, somehow, worse. There was no threat in that face, no terror or anger or fear. It was merely—a blank.

It was not a human face. Its complete lack of emotion or expression could have belonged to a sleeping child of ten—or to a member of a different race. Malone looked at the boy, and looked away.

Was it possible that Logan knew what he was thinking?

Answer me, he thought, directly at the still boy.

There was no reply, none at all. Malone forced himself to look away. But the air in the room seemed to have become much colder.

The attendants stood on either side of him, waiting. For one long second no one moved, and then Dr. Dowson reached into his desk drawer and produced a sheaf of papers.

"If you'll sign these for the government," he said, "you may have Mr. Logan. There seems little else that I can do, Mr. Malone—in spite of my earnest pleas—"

"I'm sorry," Malone said. After all, he *needed* Logan, didn't he? After a look at the boy, he wasn't sure any more—but the Queen had said she wanted him, and the Queen's word was law. Or what passed for law, anyhow, at least for the moment.

Malone took the papers and looked them over. There was nothing special about them; they were merely standard release forms, absolving the staff and management of Desert Edge Sanitarium from every conceivable responsibility under any conceivable circumstances, as far as William Logan was concerned. Dr. Dowson gave Malone a look that said: "Very well, Mr. Malone; I will play Pilate and wash my hands of the matter—but you needn't

think I like it." It was a lot for one look to say, but Dr. Dowson's dark and sunken eyes got the message across with no loss in transmission. As a matter of fact, there seemed to be more coming—a much less printable message was apparently on the way through those glittering, sad and angry eyes.

Malone avoided them nervously, and went over the papers again instead. At last he signed them and handed them back. "Thanks for your co-operation, Dr. Dowson," he said briskly, feeling ten kinds of a traitor.

"Not at all," Dowson said bitterly. "Mr. Logan is now in your custody. I must trust you to take good care of him."

"The best care we can," Malone said. It didn't seem sufficient. He added: "The best possible care, doctor," and tried to look dependable and trustworthy, like a Boy Scout. He was aware that the effort failed miserably.

At his signal, the two plainclothes FBI men took over from the attendants. They marched Logan out to their car, and Malone led the procession back to Boyd's automobile, a procession that consisted—in order—of Sir Kenneth Malone, prospective Duke of Columbia, Queen Elizabeth I, Lady Barbara, prospective Duchess of an unspecified county, and Sir Thomas Boyd, prospective Duke of Poughkeepsie. Malone hummed a little of "Pomp and Circumstance" as they walked; somehow, he thought it was called for.

They piled into the car, Boyd at the wheel with Malone next to him, and the two ladies in back, with Queen Elizabeth sitting directly behind Sir Thomas. Boyd started the engine and they turned and roared off.

"Well," said Her Majesty with an air of great complacence, "that's that. That makes six of us."

Malone looked around the car. He counted the people. There were four. He said, puzzled: "Six?"

"That's right, Sir Kenneth," Her Majesty said. "You have it exactly. Six."

"You mean six telepaths?" Sir Thomas asked in a deferent tone of voice.

"Certainly I do," Her Majesty replied. "We telepaths, you know, must stick together. That's the reason I got poor little Willie out of that sanitarium of his, you know—and, of course, the others will be joining us."

"Don't you think it's time for your nap, dear?" Lady Barbara put in suddenly.

"My *what?*" It was obvious that Queen Elizabeth was Not Amused.

"Your nap, dear," Lady Barbara said.

"Don't call me 'dear,' " Her Majesty snapped.

"I'm sorry, Your Majesty," Barbara murmured. "But really—"

"My dear girl," Her Majesty said, "I am not a child. I am your sovereign. Do try to have a little respect. Why, I remember when Shakespeare used to say to me—but that's no matter, not now."

"About those telepaths—" Boyd began.

"Telepaths," Her Majesty said. "Ah, yes. We must all stick together. In the hospital, you know, we had a little joke—the patients for Insulin Shock Therapy used to say: 'If we don't stick together, we'll all be stuck separately.' Do you see, Sir Thomas?"

"But," Sir Kenneth Malone said, trying desperately to return to the point. *"Six?"* He had counted them up in his mind. Burris had mentioned one found in St. Elizabeths, and two more picked up later. With Queen Elizabeth, and now William Logan, that made five.

Unless the Queen was counting him in. There didn't seem any good reason why not.

"Oh, no," Her Majesty said with a little trill of laughter, "not you, Sir Kenneth. I meant Mr. Miles."

Sir Thomas Boyd asked: "Mr. Miles?"

"That's right," Her Majesty said. "His name is Barry Miles, and your FBI men found him an hour ago in New Orleans. They're bringing him to Yucca Flats to meet the rest of us; isn't that nice?"

Lady Barbara cleared her throat.

"It really isn't necessary for you to try to get my attention, dear," the Queen said. "After all, I do know what you're thinking."

Lady Barbara blinked. "I still want to suggest, respectfully, about that nap—" she began.

"My dear girl," the Queen said, with the faintest trace of impatience, "I do not feel the least bit tired, and this is such an exciting day that I just don't want to miss any of it. Besides, I've already told you I don't want a nap. It isn't polite to be insistent to your Queen—no matter how strongly you feel about a matter. I'm sure you'll learn to understand that, dear."

Lady Barbara opened her mouth, shut it again, and opened it once more. "My goodness," she said.

"That's the idea," Her Majesty said approvingly. "Think before you speak—and then don't speak. It really isn't necessary, since I know what you're thinking."

Malone said grimly: "About this new telepath . . . this Barry Miles Did they find him—"

"In a nut-house?" Her Majesty said sweetly. "Why, of course, Sir Kenneth. You were quite right when you thought that telepaths went insane because they had a sense they couldn't effectively use, and because no one believed them. How would you feel, if nobody believed you could see?"

"Strange," Malone admitted.

"There," Her Majesty said. "You see? Telepaths do go insane—it's sort of an occupational disease. Of course, not all of them are insane."

"Not all of them?" Malone felt the faint stirrings of hope. Perhaps they would turn up a telepath yet who was completely sane and rational.

"There's me, of course," Her Majesty said.

Lady Barbara gulped audibly. Boyd said nothing, but gripped the wheel of the car more tightly.

And Malone thought to himself:

That's right. There's Queen Elizabeth —who says she isn't crazy.

And then he thought of one more sane telepath. But the knowledge did not make him feel any better.

It was, of course, the spy.

How many more are going to turn up? Malone wondered.

"Oh, that's about all of us," the Queen said. "There is one more, but she's in a hospital in Honolulu, and your men won't find her until tomorrow."

Boyd turned. "Do you mean you can foretell the future, too?" he asked in a strained voice.

Lady Barbara screamed: "Keep your eyes on the wheel and your hands on the road!"

Sir Thomas Boyd . . . looking majestic.

"What?" Boyd said.

There was a terrific blast of noise, and a truck went by in the opposite direction. The driver, a big, ugly man with no hair on his head, leaned out to curse at the quartet, but his mouth remained open. He stared at the four Elizabethans and said nothing at all as he whizzed by.

"What was that?" Boyd asked faintly.

"That," Malone snapped, "was a truck. And it was due entirely to the mercy of God that we didn't hit it. Barbara's right. Keep your eyes on the wheel and your hands on the road." He paused and thought that over. Then he said: "Does that mean anything at all?"

"Lady Barbara was confused by the excitement," the Queen said calmly. "It's all right now, dear."

Lady Barbara blinked across the seat. "I was—afraid," she said.

"It's all right," the Queen said. "I'll take care of you."

"This," Malone announced to no one in particular, "is ridiculous."

Boyd swept the car around a curve and concentrated grimly on the road. After a second the Queen said: "Since you're still thinking about the question, I'll answer you."

"What question?" Malone said, thoroughly baffled.

"Sir Thomas asked me if I could foretell the future," the Queen said equably. "Of course I can't. That's silly. Just because I'm immortal and I'm a telepath, don't go hog-wild."

"Then how did you know the FBI agents were going to find the girl in Honolulu tomorrow?" Boyd said.

"Because," the Queen said, "they're thinking about looking in the hospital tomorrow, and when they look they'll certainly find her."

Boyd said: "Oh," and was silent.

But Malone had a grim question. "Why didn't you tell me about these other telepaths before?" he said. "You could have saved us a lot of work."

"Oh, heavens to Betsy, Sir Kenneth," Her Majesty exclaimed. "How could I? After all, the proper precautions had to be taken first, didn't they? I told you all the others were crazy—*really* crazy, I mean. And they just wouldn't be safe without the proper precautions."

"Perhaps you ought to go back to the hospital, too," Barbara said, and added: "Your Majesty," just in time.

"But if I did, dear," Her Majesty said, "you'd lose your chance to become a Duchess, and that wouldn't be at all nice. Besides, I'm having so much *fun*!" She trilled a laugh again. "Riding around like this is just wonderful!" she said.

And you're important for national security, Malone said to himself.

"That's right, Sir Kenneth," the Queen said. "The country needs me, and I'm happy to serve. That is the job of a sovereign."

"Fine," Malone said, hoping it was.

"Well, then," said Her Majesty, "that settles that. We have a whole night ahead of us, Sir Kenneth. What do you say we make a night *of* it?"

"Knight who?" Malone said. He

felt confused again. It seemed as if he was always feeling confused lately.

"Don't be silly, Sir Kenneth," Her Majesty said. "There are times and times."

"Sure," Malone said at random. *And time and a half,* he thought. *Possibly for overtime.* "What is Your Majesty thinking of?" he asked with trepidation.

"I want to take a tour of Las Vegas," Her Majesty said primly.

Lady Barbara shook her head. "I'm afraid that's not possible, Your Majesty," she said.

"And why not, pray?" Her Majesty said. "No. I can see what you're thinking. It's not safe to let me go wandering around in a strange city, and particularly if that city is Las Vegas. Well, dear, I can assure you that it's perfectly safe."

"We've got work to do," Boyd contributed

Malone said nothing. He stared bleakly at the hood ornament on the car

"I have made my wishes known," the Queen said.

Lady Barbara said: "But—"

Boyd, however, knew when to give in. "Yes, Your Majesty," he said.

She smiled graciously at him, and answered Lady Barbara only by a slight lift of her regal eyebrow.

Malone had been thinking about something else. When he was sure he had a firm grip on himself he turned. "Your Majesty, tell me something," he said. "You can read my mind, right?"

"Well, of course, Sir Kenneth," Her Majesty said. "I thought I'd proved that to you. And, as for what you're about to ask—"

"No," Malone said. "Please. Let me ask the questions before you answer them. It's less confusing that way. I'll cheerfully admit that it shouldn't be—but it is. Please?"

"Certainly, Sir Kenneth, if you wish," the Queen said. She folded her hands in her lap and waited quietly.

"O.K.," Malone said. "Now, if you can read my mind, then you must know that I don't *really* believe that you are Queen Elizabeth of England The First, I mean."

"Mr. Malone," Barbara Wilson said suddenly. "I—"

"It's all right, child," the Queen said. "He doesn't disturb me. And I do wish you'd call him Sir Kenneth. That's his title, you know."

"Now that's what I mean," Malone said. "Why do you want us to *act* as if we believe you, when you know we don't?"

"Because that's the way people do act," the Queen said calmly. "Very few people really believe that their so-called superiors *are* superior. Almost none of them do, in fact."

"Now wait a minute," Boyd began.

"No, no, it's quite true," the Queen said, "and, unpleasant as it may be, we must learn to face the truth. That's the path of sanity." Lady Barbara made a strangled noise but Her Majesty continued, unruffled. "Nearly everybody suffers from the silly delusion that he's possibly equal to, but very probably superior to, everybody

else . . . my goodness, where would we be if that were true?"

Malone felt that a comment was called for, and he made one. "Who knows?" he said.

"All the things people do toward their superiors," the Queen said, "are done for social reasons. For instance, Sir Kenneth: you don't realize fully how you feel about Mr. Burris."

"He's a nice guy," Malone said. "I work for him. He's a good Director of the FBI."

"Of course," the Queen said. "But you believe you could do the job just as well, or perhaps a little better."

"I do not," Malone said angrily.

Her Majesty reserved a dignified silence.

After a while Malone said: "And what if I do?"

"Why, nothing," Her Majesty said. "You don't think Mr. Burris is any smarter or better than you are—but you treat him as if you did. All I am insisting on is the same treatment."

"But if we don't believe—" Boyd began.

"Bless you," Her Majesty said, "I can't help the way you *think*, but, as Queen, I do have some control over the way you *act*."

Malone thought it over. "You have a point there," he said at last.

Barbara said: "But—"

"Yes, Sir Kenneth," the Queen said, "I do." She seemed to be ignoring Lady Barbara. Perhaps, Malone thought, she was still angry over the nap affair. "It's not that," the Queen said.

"Not what?" Boyd said, thoroughly confused.

"Not the naps," the Queen said.

"What naps?" Boyd said.

Malone said: "I was thinking—"

"Good," Boyd said. "Keep it up. I'm driving. Everything's going to hell around me, but I'm driving."

A red light appeared ahead. Boyd jammed on the brakes with somewhat more than the necessary force, and Malone was thrown forward with a grunt. Behind him there were two ladylike squeals.

Malone struggled upright. "Barbara?" he called. "Are you all right—" Then he remembered the Queen.

"It's all right," Her Majesty said. "I can understand your concern for Lady Barbara." She smiled at Malone as he turned.

Malone gaped at her. Of course she knew what he thought about Barbara; she'd been reading his mind. And, apparently, she was on his side. That was good, even though it made him slightly nervous to think about.

"Now," the Queen said suddenly, "what about tonight?"

"Tonight?"

"Yes, of course," the Queen said. She smiled, and put up a hand to pat at her white hair under the Elizabethan skullcap. "I think I should like to go to the Palace," she said. "After all, isn't that where a Queen should be?"

Boyd said, in a kind of explosion: "London? England?"

"Oh, dear me—" the Queen began, and Barbara said:

"I'm afraid that I simply can't allow anything like that. Overseas—"

"I didn't mean overseas, dear," Her Majesty said. "Sir Kenneth, please explain to these people."

The Palace, Malone knew, was more properly known as the Golden Palace. It was right in Las Vegas—convenient to all sources of money. As a matter of fact, it was one of the biggest gambling houses along the Las Vegas strip, a veritable chaos of wheels, cards, dice, chips and other such devices. Malone explained all this to the others, wondering meanwhile why Miss Thompson wanted to go there.

"*Not* Miss Thompson, *please*, Sir Kenneth," Her Majesty said.

"Not Miss Thompson what?" Boyd said. "What's going on anyhow?"

"She's reading my mind," Malone said.

"Well, then," Boyd snapped, "tell her to keep it to herself." The car started up again with a roar and Malone and the others were thrown around again, this time toward the back. There was a chorus of groans and squeals, and they were on their way once more.

"To reply to your question, Sir Kenneth," the Queen said.

Lady Barbara said, with some composure: "What question . . . Your Majesty?"

The Queen nodded regally at her. "Sir Kenneth was wondering why I wished to go to the Golden Palace," she said. "And my reply is this: it is none of your business why I want to go there. After all, is my word law, or isn't it?"

There didn't seem to be a good enough answer to that, Malone thought sadly. He kept quiet and was relieved to note that the others did the same. However, after a second he thought of something else.

"Your Majesty," he began carefully, "we've got to go to Yucca Flats tomorrow. Remember?"

"Certainly," the Queen said. "My memory is quite good, thank you. But that is tomorrow morning. We have the rest of the night left. It's only a little after nine, you know."

"Heavens," Barbara said. "Is it that late?"

"It's even later," Boyd said sourly. "It's much later than you think."

"And it's getting later all the time," Malone added. "Pretty soon the sun will go out and all life on earth will end. Won't that be nice and peaceful?"

"I'm looking forward to it," Boyd said

"I'm not," Barbara said. "But I've got to get some sleep tonight, if I'm going to be any good at all tomorrow."

You're pretty good right now, Malone thought, but he didn't say a word. He felt the Queen's eye on him but didn't turn around. After all, she was on his side—wasn't she?

At any rate, she didn't say anything.

"Perhaps it would be best," Barbara said, "if you and I . . . Your Majesty . . . just went home and

rested up. Some other time, then, when there's nothing vital to do, we could—"

"No," the Queen said. "We couldn't. Really, Lady Barbara, how often will I have to remind you of the duties you owe your sovereign—not the least of which is obedience, as dear old Ben used to say."

"Ben?" Malone said, and immediately wished he hadn't.

"Jonson, dear boy," the Queen said. "Really a remarkable man—and such a good friend to poor Will. Why, did you ever hear the story of how he actually paid Will's rent in London once upon a time? That was while Will and that Anne of his were having one of their arguments, of course. I didn't tell you that story, did I?"

"No," Malone said truthfully, but his voice was full of foreboding. "If I might remind Your Majesty of the subject," he added tentatively, "I should like to say—"

"Remind me of the subject!" the Queen said, obviously delighted. "What a lovely pun! And how much better because purely unconscious! My, my, Sir Kenneth, I never suspected you of a pointed sense of humor—could you be a descendant of Sir Richard Greene, I wonder?"

"I doubt it," Malone said. "My ancestors were all poor but Irish." He paused. "Or, if you prefer, Irish but poor." Another pause, and then he added: "If that means anything at all. Which I doubt."

"In any case," the Queen said, her eyes twinkling, "you were about to enter a new objection to our little visit to the Palace, were you not?"

Malone admitted as much. "I really think that—"

Her eyes grew suddenly cold. "If I hear any more objections, Sir Kenneth, I shall not only rescind your knighthood and—when I regain my rightful kingdom—deny you your dukedom, but I shall refuse to co-operate any further in the business of Project Isle."

Malone turned cold. His face, he knew without glancing in the mirror, was white and pale. He thought of what Burris would do to him if he didn't follow through on his assigned job.

Even if he wasn't as good as Burris thought he was, he really liked being an FBI agent. He didn't want to be fired.

And Burris had said: *"Give her anything she wants."*

He gulped and tried to make his face look normal. "All right," he said. "Fine. We'll go to the Palace."

He tried to ignore the pall of apprehension that fell over the car.

VI

The management of the Golden Palace had been in business for many long, dreary, profitable years, and each member of the staff thought he or she had seen just about everything there was to be seen. And those that were new felt an obligation to *look* as if they'd seen everything.

Therefore, when the entourage of Queen Elizabeth I strolled into the

main salon, not a single eye was batted. Not a single gasp was heard.

Nevertheless, the staff kept a discreet eye on the crew. Drunks, rich men or Arabian millionaires were all familiar. But a group out of the Sixteenth Century was something else again.

Malone almost strutted, conscious of the sidelong glances the group was drawing. But it was obvious that Sir Thomas was the major attraction. Even if you could accept the idea of people in strange costumes, the sight of a living, breathing absolute duplicate of King Henry VIII was a little too much to take. It has been reported that two ladies named Jane, and one named Catherine, came down with sudden headaches and left the salon within five minutes of the group's arrival.

Malone felt he knew, however, why he wasn't drawing his full share of attention. He felt a little out of place. The costume was one thing, and, to tell the truth, he was beginning to enjoy it. Even with the weight of the stuff, it was going to be a wrench to go back to single-breasted suits and plain white shirts. But he did feel that he should have been carrying a sword.

Instead, he had a .44 Magnum Colt snuggled beneath his left armpit.

Somehow, a .44 Magnum Colt didn't seem as romantic as a sword. Malone pictured himself saying: "Take that, varlet." Was varlet what you called them, he wondered. Maybe it was valet.

"Take that, valet," he muttered. No, that sounded even worse. Oh, well, he could look it up later.

The truth was that he had been born in the wrong century. He could imagine himself at the Mermaid Tavern, hob-nobbing with Shakespeare and all the rest of them. He wondered if Sir Richard Greene would be there. Then he wondered who Sir Richard Greene was.

Behind Sir Kenneth, Sir Thomas Boyd strode, looking majestic, as if he were about to fling purses of gold to the citizenry. As a matter of fact, Malone thought, he was. They all were.

Purses of good old United States of America gold.

Behind Sir Thomas came Queen Elizabeth and her Lady-in-Waiting, Lady Barbara Wilson. They made a beautiful foursome.

"The roulette table," Her Majesty said with dignity. "Precede me."

They pushed their way through the crowd. Most of the customers were either excited enough, drunk enough, or both to see nothing in the least incongruous about a Royal Family of the Tudors invading the Golden Palace. Very few of them, as a matter of fact, seemed to notice the group.

They were roulette players. They noticed nothing but the table and the wheel. Malone wondered what they were thinking about, decided to ask Queen Elizabeth, and then decided against it. He felt it would make him nervous to know.

Her Majesty took a handful of chips.

The handful was worth, Malone knew, exactly five thousand dollars.

That, he'd thought, ought to last them an evening, even in the Golden Palace. In the center of the strip, inside the city limits of Las Vegas itself, the five thousand would have lasted much longer—but Her Majesty wanted the Palace, and the Palace it was.

Malone began to smile. Since he couldn't avoid the evening, he was determined to enjoy it. It was sort of fun, in its way, indulging a sweet harmless old lady. And there was nothing they could do until the next morning, anyhow.

His indulgent smile faded very suddenly.

Her Majesty plunked the entire handful of chips—*five thousand dollars!* Malone thought dazedly—onto the table. "Five thousand," she said in clear, cool measured tones, "on Number One."

The croupier blinked only slightly. He bowed. "Yes, Your Majesty," he said.

Malone was briefly thankful, in the midst of his black horror, that he had called the management and told them that the Queen's plays were backed by the United States Government. Her Majesty was going to get unlimited credit—and a good deal of awed and somewhat puzzled respect.

Malone watched the spin begin with mixed feelings. There was five thousand dollars riding on the little ball. But, after all, Her Majesty was a telepath. Did that mean anything?

He hadn't decided by the time the wheel stopped, and by then he didn't have to decide.

"Thirty-four," the croupier said tonelessly. "Red, Even and High."

He raked in the chips with a nonchalant air.

Malone felt as if he had swallowed his stomach. Boyd and Lady Barbara, standing nearby, had absolutely no expressions on their faces. Malone needed no telepath to tell him what they were thinking.

They were exactly the same as he was. They were incapable of thought.

But Her Majesty never batted an eyelash. "Come, Sir Kenneth," she said. "Let's go on to the poker tables."

She swept out. Her entourage followed her, shambling a little, and blank-eyed. Malone was still thinking about the five thousand dollars. Oh, well, Burris had said to give the lady anything she wanted. *But!* he thought. *Did she have to play for royal stakes?*

"I am, after all, a Queen," she whispered back to him.

Malone thought about the National Debt. He wondered if a million more or less would make any real difference. There would be questions asked in committees about it. He tried to imagine himself explaining the evening to a group of congressmen. "Well, you see, gentlemen, there was this roulette wheel—"

He gave it up.

Then he wondered how much hotter the water was going to get, and he stopped thinking altogether in self-defense.

In the next room, there were scattered tables. At one, a poker game was in full swing. Only five were playing; one, by his white-tie-and-tails uni-

form, was easily recognizable as a house dealer. The other four were all men, one of them in full cowboy regalia The Tudors descended upon them with great suddenness, and the house dealer looked up and almost lost his cigarette.

"We haven't any money, Your Majesty," Malone whispered.

She smiled up at him sweetly, and then drew him aside. "If you were a telepath," she said, "how would *you* play poker?"

Malone thought about that for a minute, and then turned to look for Boyd. But Sir Thomas didn't even have to be given instructions. "Another five hundred?" he said.

Her Majesty sniffed audibly. "Another five thousand," she said regally.

Boyd looked Malone-wards Malone looked defeated.

Boyd turned with a small sigh and headed for the cashier's booth. Three minutes later, he was back with a fat fistful of chips.

"Five grand?" Malone whispered to him.

"Ten," Boyd said. "I know when to back a winner."

Her Majesty went over to the table. The dealer had regained control, but looked up at them with a puzzled stare.

"You know," the Queen said, with an obvious attempt to put the man at his ease, "I've always wanted to visit a gambling hall."

"Sure, lady," the dealer said. "Naturally."

"May I sit down?"

The dealer looked at the group. "How about your friends?" he said cautiously.

The Queen shook her head. "They would rather watch, I'm sure."

For once Malone blessed the woman's telepathic talent. He, Boyd and Barbara Wilson formed a kind of Guard of Honor around the chair which Her Majesty occupied Boyd handed over the new pile of chips, and was favored with a royal smile.

"This is a poker game, ma'am," the dealer said to her, quietly.

"I know, I know," Her Majesty said with a trace of testiness. "Roll 'em."

The dealer stared at her popeyed. Next to her, the gentleman in the cowboy outfit turned "Ma'am, are you from around these parts?" he said.

"Oh, no," the Queen said. "I'm from England."

"England?" The cowboy looked puzzled. "You don't seem to have any accent, ma'am," he said at last.

"Certainly not," the Queen said. "I've lost that; I've been over here a great many years."

Malone hoped fervently that Her Majesty wouldn't mention just how many years. He didn't think he could stand it, and he was almost grateful for the cowboy's nasal twang.

"Oil?" he said.

"Oh, no," Her Majesty said. "The Government is providing this money "

"The Government?"

"Certainly," Her Majesty said. "The FBI, you know."

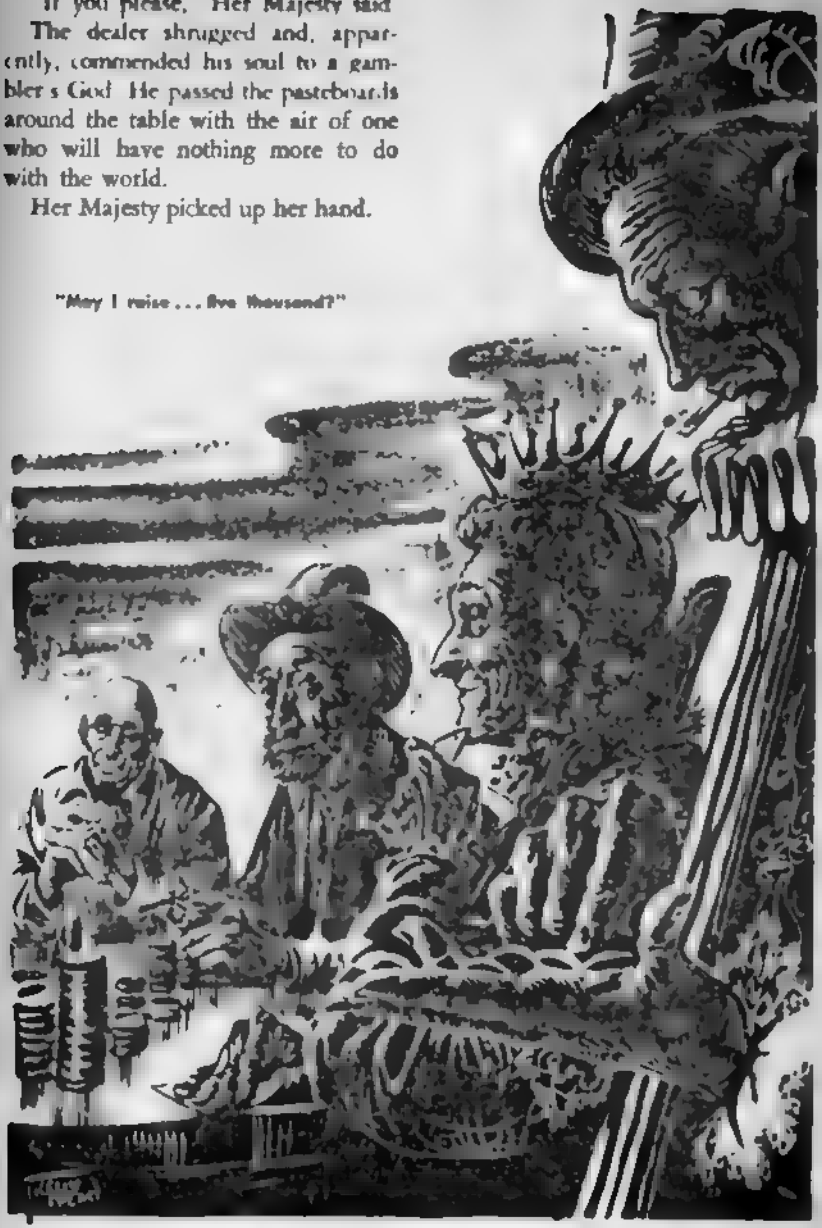
There was a long silence.

At last, the dealer said: "Five-card draw your game, ma'am?"

"If you please," Her Majesty said

The dealer shrugged and, apparently, commended his soul to a gambler's God. He passed the pasteboards around the table with the air of one who will have nothing more to do with the world.

Her Majesty picked up her hand.



"The ante's ten, ma'am," the dealer said softly.

Without looking, Her Majesty removed a ten-dollar chip from the pile before her and sent it spinning to the middle of the table.

The dealer opened his mouth, but said nothing. Malone, meanwhile, was peering over the Queen's shoulder.

She held a pair of nines, a four, a three and a Jack.

The man to the left of the dealer announced glumly: "Can't open."

The next man grinned. "Open for twenty," he said.

Malone closed his eyes. He heard the cowboy say: "I'm in," and he opened his eyes again. The Queen was pushing two ten-dollar chips toward the center of the table.

The next man dropped, and the dealer looked round the table. "How many?"

The man who couldn't open took three cards. The man who'd opened for twenty stood pat. Malone shuddered invisibly. That, he figured, meant at least a straight. And Queen Elizabeth Thompson was going in against a straight or better with a pair of nines, Jack high.

For the first time, it was borne in on Malone that being a telepath did not necessarily mean that you were a good poker player. Even if you knew what every other person at the table held, you could still make a whole lot of stupid mistakes.

He looked nervously at Queen Elizabeth, but her face was serene. Apparently she'd been following the thoughts of the poker players, and not concentrating on him at all. That was a relief. He felt, for the first time in days, as if he could think freely.

The cowboy said: "Two," and took them. It was Her Majesty's turn.

"I'll take two," she said, and threw away the three and four. It left her with the nine of spades and the nine of hearts, and the Jack of diamonds.

These were joined, in a matter of seconds, by two bright new cards: the six of clubs and the three of hearts.

Malone closed his eyes. Oh, well, he thought.

It was only thirty bucks down the drain. Practically nothing.

Of course Her Majesty dropped at once; knowing what the other players held, she knew she couldn't beat them after the draw. But she did like to take long chances, Malone thought miserably. Imagine trying to fill a full house on one pair!

Slowly, as the minutes passed, the pile of chips before Her Majesty dwindled. Once Malone saw her win with two pair against a reckless man trying to fill a straight on the other side of the table. But whatever was going on, Her Majesty's face was as calm as if she were asleep.

Malone's worked overtime. If the Queen hadn't been losing so obviously, the dealer might have mistaken the play of naked emotion across his visage for a series of particularly obvious signals.

An hour went by. Barbara left to find a ladies' lounge where she could sit down and try to relax. Fascinated in a horrible sort of way, both Malone

and Boyd stood, rooted to the spot, while hand after hand went by and the ten thousand dollars dwindled to half that, to a quarter, and even less—

Her Majesty, it seemed, was a mighty poor poker player.

The ante had been raised by this time. Her Majesty was losing one hundred dollars a hand, even before the betting began. But she showed not the slightest indication to stop.

"We've got to get up in the morning," Malone announced to no one in particular, when he thought he couldn't possibly stand another half hour of the game.

"So we do," Her Majesty said with a little regretful sigh. "Very well, then. Just one more hand."

"It's a shame to lose you," the cowboy said to her, quite sincerely. He had been winning steadily ever since Her Majesty sat down, and Malone thought that the man should, by this time, be awfully grateful to the United States Government. Somehow, he doubted that this gratitude existed.

Malone wondered if she should be allowed to stay for one more hand. There was, he estimated, about two thousand dollars in front of her. Then he wondered how he was going to stop her.

The cards were dealt.

The first man said quietly: "Open for two hundred."

Malone looked at the Queen's hand. It contained the Ace, King, Queen and ten of clubs—and the seven of spades.

Oh, no. He thought. *She couldn't possibly be thinking of filling a flush.*

He knew perfectly well that she was.

The second man said: "And raise two hundred."

The Queen equably tossed—counting, Malone thought, the ante—five hundred into the pot.

The cowboy muttered to himself for a second, and finally shoved in his money.

"I think I'll raise it another five hundred," the Queen said calmly.

Malone wanted to die of shock. Unfortunately, he remained alive and watching. He was the last man, after some debate internal, to shove a total of one thousand dollars into the pot.

"Cards?" said the dealer.

The first man said: "One."

It was too much to hope for, Malone thought. If that first man were trying to fill a straight or a flush, maybe he wouldn't make it. And maybe something final would happen to all the other players. But that was the only way he could see for Her Majesty to win.

The card was dealt. The second man stood pat and Malone's green tinge became obvious to the veriest dunce. The cowboy, on Her Majesty's right, asked for a card, received it and sat back without a trace of expression.

The Queen said: "I'll try one for size." She'd picked up poker lingo, and the basic rules of the game, Malone realized, from the other players —or possibly from someone at the hospital itself, years ago.

He wished she'd picked up something less dangerous instead, like a

love of big-game hunting, or stunt-flying.

But no. It had to be poker.

The Queen threw away her seven of spades, showing more sense than Malone had given her credit for at any time during the game. She let the other card fall and didn't look at it.

She smiled up at Malone and Boyd. "Live dangerously," she said gaily.

Malone gave her a hollow laugh.

The last man drew one card, too, and the betting began.

The Queen's remaining thousand was gone before an eye could notice it. She turned to Boyd.

"Sir Thomas," she said. "Another five thousand, please. At once."

Boyd said nothing at all, but marched off. Malone noticed, however, that his step was neither as springy nor as confident as it had been before. For himself, Malone was sure that he could not walk at all

Maybe, he thought hopefully, the floor would open up and swallow them all. He tried to imagine explaining the loss of twenty thousand dollars to Burns and some congressmen, and after that he watched the floor narrowly, hoping for the smallest hint of a crack in the palazzo marble.

"May I raise the whole five thousand?" the Queen said.

"It's O.K. with me," the dealer said. "How about the rest of you?"

The four grunts he got expressed a suppressed eagerness. The Queen took the new chips Boyd had brought her and shoved them into the center of the table with a fine, careless gesture of her hand. She smiled gaily at everybody. "Seeing me?" she said.

Everybody was.

"Well, you see, it was this way," Malone muttered to himself, rehearsing. He half-thought that one of the others would raise again, but no one did. After all, each of them must be convinced that he held a great hand, and though raising had gone on throughout the hand, each must now be afraid of going the least little bit too far and scaring the others out.

"Mr. Congressman," Malone muttered, "there's this game called poker. You play it with cards and money. Chiefly money."

That wasn't any good.

"You've been called," the dealer said to the first man, who'd opened the hand a year or so before.

"Why, sure," the player said, and laid down a pair of aces, a pair of threes—and a four. One of the threes, and the four, were clubs. That reduced the already improbable chances of the Queen's coming up with a flush.

"Sorry," said the second man, and laid down a straight with a single gesture. The straight was nine-high and there were no clubs in it. Malone felt devoutly thankful for that.

The second man reached for the money but, under the popeyed gaze of the dealer, the fifth man laid down another straight—this one ten-high. The nine was a club. Malone felt the odds go down, right in his own stomach.

And now the cowboy put down his cards. The King of diamonds. The

King of hearts. The Jack of diamonds. The Jack of spades. And—the Jack of hearts.

Full house. "Well," said the cowboy, "I suppose that does it."

The Queen said: "Please. One moment."

The cowboy stopped halfway in his reach for the enormous pile of chips. The Queen laid down her four clubs—Ace, King, Queen and ten—and for the first time flipped over her fifth card

It was the Jack of clubs.

"My God," the cowboy said, and it sounded like a prayer. "A royal flush"

"Naturally," the Queen said. "What else?"

Her Majesty calmly scooped up the tremendous pile of chips. The cowboy's hands fell away. Five mouths were open around the table.

Her Majesty stood up. She smiled sweetly at the men around the table. "Thank you very much, gentlemen," she said. She handed the chips to Malone, who took them in nerveless fingers. "Sir Kenneth," she said, "I hereby appoint you temporary Chancellor of the Exchequer—at least until Parliament convenes."

There was, Malone thought, at least thirty-five thousand dollars in the pile. He could think of nothing to say.

So, instead of using up words, he went and cashed in the chips. For once, he realized, the Government had made money on an investment. It was probably the first time since 1775.

Malone thought vaguely that the Government ought to make more investments like the one he was cashing in. If it did, the National Debt could be wiped out in a matter of days.

He brought the money back. Boyd and the Queen were waiting for him, but Barbara was still in the ladies' lounge. "She's on the way out," the Queen informed him, and, sure enough, in a minute they saw the figure approaching them. Malone smiled at her, and, tentatively, she smiled back. They began the long march to the exit of the club, slowly and regally, though not by choice.

The crowd, it seemed, wouldn't let them go. Malone never found out, then or later, how the news of Her Majesty's winnings had gone through the place so fast, but everyone seemed to know about it. The Queen was the recipient of several low bows and a few drunken curtsies, and, when they reached the front door at last, the doorman said in a most respectful tone: "Good evening, Your Majesty."

The Queen positively beamed at him. So, to his own great surprise, did Sir Kenneth Malone.

Outside, it was about four in the morning. They climbed into the car and headed back toward the hotel.

Malone was the first to speak. "How did you know that was a Jack of clubs?" he said in a strangled sort of voice.

The little old lady said calmly: "He was cheating."

"The dealer?" Malone asked.

The little old lady nodded.

"In *your* favor?"

"He couldn't have been cheating,"

Boyd said at the same instant. "Why would he want to give you all that money?"

The little old lady shook her head. "He didn't want to give it to me," she said. "He wanted to give it to the man in the cowboy's suit. His name is Elliott, by the way—Bernard L. Elliott. And he comes from Weehawken. But he pretends to be a Westerner so nobody will be suspicious of him. He and the dealer are in cahoots . . . isn't that the word?"

"Yes, Your Majesty," Boyd said. "That's the word." His tone was awed and respectful, and the little old lady gave a nod and became Queen Elizabeth I once more.

"Well," she said, "the dealer and Mr Elliott were in cahoots, and the dealer wanted to give the hand to Mr. Elliott. But he made a mistake, and dealt the Jack of clubs to me. I watched him, and, of course, I knew what he was thinking. The rest was easy."

"My God," Malone said. "Easy."

Barbara said: "Did she win?"

"She won," Malone said with what he felt was positively magnificent understatement

"Good," Barbara said, and lost interest at once.

Malone had seen the lights of a car in the rear-view mirror a few minutes before. When he looked now, the lights were still there—but the fact just didn't register until, a couple of blocks later, the car began to pull around them on the left. It was a Buick, while Boyd's was a new Lincoln, but the edge wasn't too apparent yet.

Malone spotted the gun barrel protruding from the Buick and yelled just before the first shot went off.

Boyd, at the wheel, didn't even bother to look. His reflexes took over and he slammed his foot down on the brake. The specially-built FBI Lincoln slowed down instantly. The shotgun blast splattered the glass of the curved windshield all over—but none of it came into the car itself.

Malone already had his hand on the butt of the .44 Magnum under his left armpit, and he even had time to be grateful, for once, that it wasn't a smallsword. The women were in the back seat, frozen, and he yelled: "Duck!" and felt, rather than saw, both of them sink down onto the floor of the car.

The Buick had slowed down, too, and the gun barrel was swiveling back for a second shot. Malone felt naked and unprotected. The Buick and the Lincoln were even on the road now.

Malone had his revolver out. He fired the first shot without even realizing fully that he'd done so, and he heard a piercing scream from Barbara in the back seat. He had no time to look back

A .44 Magnum is not, by any means, a small gun. As hand guns go —revolvers and automatics—it is about as large as a gun can get to be. An ordinary car has absolutely no chance against it.

Much less the glass in an ordinary car.

The first slug drilled its way through the window glass as though it were not there, and slammed its way through an even more unprotected obstacle, the frontal bones of the triggerman's skull. The second slug from Malone's gun missed the hole the first slug had made by something less than an inch.

The big, apelike thug who was holding the shotgun had a chance to pull the trigger once more, but he wasn't aiming very well. The blast merely scored the paint off the top of the Lincoln.

The rear window of the Buick was open, and Malone caught sight of another glint of blued steel from the corner of his eye. There was no time to shift aim—not with bullets flying like swallows on the way to Capistrano. Malone thought faster than he had ever imagined himself capable of doing, and decided to aim for the driver.

Evidently the man in the rear seat of the Buick had had the same inspiration. Malone blasted two more high-velocity lead slugs at the driver of the big Buick, and at the same time the man in the Buick's rear seat fired at Boyd.

But Boyd had shifted tactics. He'd hit the brakes. Now he came down hard on the accelerator instead.

The chorus of shrieks from the Lincoln's back seat increased slightly in volume. Barbara, Malone knew, wasn't badly hurt; she hadn't even stopped for breath since the first shot had been fired. Anybody who could scream like that, he told himself, had to be healthy.

As the Lincoln leaped ahead, Malone pulled the trigger of his .44 twice more. The heavy, high-speed chunks of streamlined copper-coated lead leaped from the muzzle of the gun and slammed into the driver of the Buick without wasting any time. The Buick slewed across the highway.

The two shots fired by the man in the back seat went past Malone's head with a *whizz*, missing both him and Boyd by a margin too narrow to think about.

But those were the last shots. The only difference between the FBI and the Enemy seemed to be determination and practice.

The Buick spun into a flat sideskid, swiveled on its wheels and slammed into the ditch at the side of the road, turning over and over, making a horrible noise, as it broke up.

Boyd slowed the car again, just as there was a sudden blast of fire. The Buick had burst into flame and was spitting heat and smoke and fire in all directions. Malone sent one more bullet after it in a last flurry of action —saving his last one for possible later emergencies

Boyd jammed on the brakes and the Lincoln came to a screaming halt. In silence he and Malone watched the burning Buick roll over and over into the desert beyond the shoulder.

"My God," Boyd said. "My ears!"

Malone understood at once. The blast from his own still-smoking .44 had roared past Boyd's head during the gun battle. No wonder the man's

ears hurt. It was a wonder he wasn't altogether deaf.

But Boyd shook off the pain and brought out his own .44 as he stepped out of the car. Malone followed him, his gun trained.

From the rear, Her Majesty said: "It's safe to rise now, isn't it?"

"You ought to know," Malone said. "You can tell if they're still alive."

There was silence while Queen Elizabeth frowned for a moment in concentration. A look of pain crossed her face, and then, as her expression smoothed again, she said: "The traitors are dead. All except one, and he's—" She paused "He's dying," she finished. "He can't hurt you."

There was no need for further battle. Malone reholstered his 44 and turned to Boyd. "Tom, call the State Police," he said. "Get 'em down here fast."

He waited while Boyd climbed back under the wheel and began punching buttons on the dashboard. Then Malone went toward the burning Buick

He tried to drag the men out, but it wasn't any use. The first two, in the front seat, had the kind of holes in them people talked about throwing elephants through. Head and chest had been hit

Malone couldn't get close enough to the fiercely blazing automobile to make even a try for the men in the back seat

He was sitting quietly on the edge of the rear seat when the Nevada Highway Patrol cars drove up next to them. Barbara Wilson had stopped screaming, but she was still sobbing on Malone's shoulder. "It's all right," he told her, feeling ineffectual

"I never saw anybody killed before," she said.

"It's all right," Malone said. "Nothing's going to hurt you. I'll protect you."

He wondered if he meant it, and found, to his surprise, that he did. Barbara Wilson sniffled and looked up at him. "Mr. Malone—"

"Ken," he said

"I'm sorry," she said. "Ken—I'm so afraid. I saw the hole in one of the men's heads, when you fired . . . it was—"

"Don't think about it," Malone said. To him, the job had been an unpleasant occurrence, but a job, that was all. He could see, though, how it might affect people who were new to it.

"You're so brave," she said.

Malone tightened his arm around the girl's shoulder. "Just depend on me," he said. "You'll be all right if you—"

The State Trooper walked up then, and looked at them. "Mr. Malone?" he said. He seemed to be taken slightly aback at the costuming.

"That's right," Malone said. He pulled out his ID card and the little golden badge. The State Patrolman looked at them, and looked back at Malone.

"What's with the getup?" he said.

"FBI," Malone said, hoping his voice carried conviction. "Official business."

"In costume?"

"Never mind about the details," Malone snapped.

"He's an FBI agent, sir," Barbara said.

"And what are you?" the Patrolman said. "Lady Jane Grey?"

"I'm a nurse," Barbara said. "A psychiatric nurse."

"For nuts?"

"For disturbed patients."

The patrolman thought that over. "You've got the identity cards and stuff," he said at last. "Maybe you've got a reason to dress up. How would I know? I'm only a State Patrolman."

"Let's cut the monolgue," Malone said savagely, "and get to business."

The patrolman stared. Then he said: "All right, sir. Yes, sir. I'm Lieutenant Adams, Mr. Malone. Suppose you tell me what happened?"

Carefully and concisely, Malone told him the story of the Buick that had pulled up beside them, and what had happened afterward.

Meanwhile, the other cops had been looking over the wreck. When Malone had finished his story, Lieutenant Adams flipped his notebook shut and looked over toward them. "I guess it's O.K., sir," he said. "As far as I'm concerned, it's justifiable homicide. Self-defense. Any reason why they'd want to kill you?"

Malone thought about the Golden Palace. That might be a reason—but it might not. And why burden an innocent State Patrolman with the facts of FBI life?

"Official," he said. "Your chief will get the report."

The patrolman nodded. "I'll have to take a deposition tomorrow, but—"

"I know," Malone said. "Thanks. Can we go on to our hotel now?"

"I guess," the patrolman said. "Go ahead. We'll take care of the rest of this. You'll be getting a call later."

"Fine," Malone said. "Trace those hoods, and any connections they might have had. Get the information to me as soon as possible."

Lieutenant Adams nodded. "You won't have to leave the state, will you?" he asked. "I don't mean that you *can't*, exactly . . . hell, you're FBI. But it'd be easier—"

"Call Burris in Washington," Malone said. "He can get hold of me—and if the Governor wants to know where we are, or the State's Attorney, put them in touch with Burris, too. O.K.?"

"O.K.," Lieutenant Adams said. "Sure." He blinked at Malone. "Listen," he said. "About those costumes—"

"We're trying to catch Henry VIII for the murder of Anne Boleyn," Malone said with a polite smile. "O.K.?"

"I was only asking," Lieutenant Adams said. "Can't blame a man for asking, now, can you?"

Malone climbed into his front seat "Call me later," he said. The car started. "Back to the hotel, Sir Thomas," Malone said, and the car roared off.

VII

Yucca Flats, Malone thought, certainly deserved its name. It was about as flat as land could get, and it con-

tained millions upon millions of useless yuccas. Perhaps they were good for something, Malone thought, but they weren't good for *him*.

The place might, of course, have been called Cactus Flats, but the cacti were neither as big nor as impressive as the yuccas.

Or was that yucci?

Possibly, Malone mused, it was simply yucks.

And whatever it was, there were millions of it. Malone felt he couldn't stand the sight of another yucca. He was grateful for only one thing.

It wasn't summer. If the Elizabethans had been forced to drive in closed cars through the Nevada desert in the summertime, they might have started

"I knight thee Sir Andrew..."

a cult of nudity, Malone felt. It was bad enough now, in what was supposed to be winter.

The sun was certainly bright enough, for one thing. It glared through the cloudless sky and glanced with blinding force off the road. Sir Thomas Boyd squinted at it through the rather incongruous sunglasses he was wearing, while Malone wondered idly if it was the sunglasses, or the rest of the world, that was an anachronism. But Sir Thomas kept his eyes grimly on the road as he gunned the powerful Lincoln toward the Yucca Flats Labs at eighty miles an hour.

Malone twisted himself around and faced the women in the back seat. Past them, through the rear window of the Lincoln, he could see the second car. It followed them gamely, carrying the newest addition to Sir Kenneth Malone's Collection of Bats.

"Bats?" Her Majesty said suddenly, but gently. "Shame on you, Sir Kenneth These are poor, sick people. We must do our best to help them—not to think up silly names for them. For shame!"

"I suppose so," Malone said wearily. He sighed and, for the fifth time that day, he asked: "Does Your Majesty have any idea where our spy is now?"

"Well, really, Sir Kenneth," the Queen said with the slightest of hesitations, "it isn't easy, you know. Telepathy has certain laws, just like everything else. After all, even a game has laws. Being telepathic did not help me to play poker—I still had to learn the rules. And telepathy has rules, too. A telepath can easily confuse another telepath by using some of those rules."

"Oh, fine," Malone said. "Well, have you got into contact with his mind yet?"

"Oh, yes," Her Majesty said happily. "And my goodness, he's certainly digging up a lot of information, isn't he?"

Malone moaned softly. "But who *is* he?" he asked after a second.

The Queen stared at the roof of the car in what looked like concentration. "He hasn't thought of his name yet," she said. "I mean, at least if he has, he hasn't mentioned it to me. Really, Sir Kenneth, you have no idea how difficult all this is."

Malone swallowed with difficulty. "*Where* is he, then?" he said. "Can you tell me that, at least? His location?"

Her Majesty looked positively desolated with sadness. "I can't be sure," she said. "I really can't be exactly sure just where he is. He does keep moving around, I know that. But you have to remember that he doesn't want me to find him. He certainly doesn't want to be found by the FBI . . . would you?"

"Your Majesty," Malone said, "I *am* the FBI."

"Yes," the Queen said, "but suppose you weren't? He's doing his best to hide himself, even from me. It's sort of a game he's playing."

"A game!"

Her Majesty looked contrite. "Believe me, Sir Kenneth, the minute I

know exactly where he is, I'll tell you. I promise. Cross my heart and hope to die—which I can't, of course, being immortal." Nevertheless, she made an X-mark over her left breast. "All right?"

"All right," Malone said, out of sheer necessity. "O.K. But don't waste any time telling me. Do it right away. We've *got* to find that spy and isolate him somehow."

"Please don't worry yourself, Sir Kenneth," Her Majesty said. "Your Queen is doing everything she can."

"I know that, Your Majesty," Malone said. "I'm sure of it." Privately, he wondered just how much even she could do. Then he realized—for perhaps the ten-thousandth time—that there was no such thing as wondering privately any more.

"That's quite right, Sir Kenneth," the Queen said sweetly. "And it's about time you got used to it."

"What's going on?" Boyd said. "More reading minds back there?"

"That's right, Sir Thomas," the Queen said.

"I've about gotten used to it," Boyd said almost cheerfully. "Pretty soon they'll come and take me away, but I don't mind at all." He whipped the car around a bend in the road savagely. "Pretty soon they'll put me with the other sane people and let the bats inherit the world. But I don't mind at all."

"Sir Thomas!" Her Majesty said in shocked tones.

"Please," Boyd said with a deceptive calmness. "Just Mr. Boyd. Not even Lieutenant Boyd, or Sergeant Boyd. Just Mr. Boyd. Or, if you prefer, Tom."

"Sir Thomas," Her Majesty said, "I really can't understand this sudden—"

"Then don't understand it," Boyd said. "All I know is everybody's nuts, and I'm sick and tired of it."

A pall of silence fell over the company.

"Look, Tom," Malone began at last.

"Don't you try smoothing me down," Boyd snapped.

Malone's eyebrows rose. "O.K.," he said. "I won't smooth you down. I'll just tell you to shut up, to keep driving—and to show some respect to Her Majesty."

"I—" Boyd stopped. There was a second of silence.

"*That's* better," Her Majesty said with satisfaction.

Lady Barbara stretched in the back seat, next to Her Majesty. "This is certainly a long drive," she said. "Have we got much farther to go?"

"Not too far," Malone said. "We ought to be there soon."

"I . . . I'm sorry for the way I acted," Barbara said.

"What do you mean, the way you acted?"

"Crying like that," Barbara said with some hesitation. "Making an—absolute idiot of myself. When that other car—tried to get us."

"Don't worry about it," Malone said. "It was nothing."

"I just—made trouble for you," Barbara said.

Her Majesty touched the girl on the

shoulder. "He's not thinking about the trouble you cause him," she said quietly.

"Of course I'm not," Malone told her.

"But I—"

"My dear girl," Her Majesty said, "I believe that Sir Kenneth is, at least partly, in love with you."

Malone blinked. It was perfectly true—even if he hadn't quite known it himself until now. Telepaths, he was discovering, were occasionally handy things to have around.

"In . . . love—" Barbara said.

"And you, my dear—" Her Majesty began.

"Please, Your Majesty," Lady Barbara said. "No more. Not just now."

The Queen smiled, almost to herself. "Certainly, dear," she said.

The car sped on. In the distance, Malone could see the blot on the desert that indicated the broad expanse of Yucca Flats Labs. Just the fact that it could be seen, he knew, didn't mean an awful lot. Malone had been able to see it for the past fifteen minutes, and it didn't look as if they'd gained an inch on it. Desert distances are deceptive.

At long last, however, the main gate of the laboratories hove into view. Boyd made a left turn off the highway and drove a full seven miles along the restricted road, right up to the big gate that marked the entrance of the laboratories themselves. Once again, they were faced with the army of suspicious guards and security officers.

This time, suspicion was somewhat heightened by the dress of the visitors. Malone had to explain about six times that the costumes were part of an FBI arrangement, that he had not stolen his identity cards, that Boyd's cards were Boyd's, too, and in general that the four of them were not insane, not spies, and not jokesters out for a lark in the sunshine.

Malone had expected all of that. He went through the rigmarole wearily but without any sense of surprise. The one thing he hadn't been expecting was the man who was waiting for him on the other side of the gate.

When he'd finished identifying everybody for the fifth or sixth time, he began to climb back into the car. A familiar voice stopped him cold.

"Just a minute, Malone," Andrew J. Burris said. He erupted from the guardhouse like an avenging angel, followed closely by a thin man, about five feet ten inches in height, with brush-cut brown hair, round horn-rimmed spectacles, large hands and a small Sir Francis Drake beard. Malone looked at the two figures blankly.

"Something wrong, chief?" he said.

Burris came toward the car. The thin gentleman followed him, walking with an odd bouncing step that must have been acquired, Malone thought, over years of treading on rubber eggs. "I don't know," Burris said when he'd reached the door. "When I was in Washington, I seemed to know—but when I get out here in this desert, everything just goes haywire." He rubbed at his forehead.

Then he looked into the car. "Hello, Boyd," he said pleasantly.

"Hello, chief," Boyd said.

Burris blinked. "Boyd, you look like Henry VIII," he said with only the faintest trace of surprise.

"Doesn't he, though?" Her Majesty said from the rear seat. "I've noticed that resemblance myself."

Burris gave her a tiny smile. "Oh," he said. "Hello, Your Majesty. I'm—"

"Andrew J. Burris, Director of the FBI," the Queen finished for him. "Yes, I know. It's very nice to meet you at last. I've seen you on television, and over the video phone. You photograph badly, you know."

"I do?" Burris said pleasantly. It was obvious that he was keeping himself under very tight control.

Malone felt remotely sorry for the man—but only remotely. Burris might as well know, he thought, what they had all been going through the past several days.

Her Majesty was saying something about the honorable estate of knighthood, and the Queen's List. Malone began paying attention when she came to: ". . . And I hereby dub thee—" She stopped suddenly, turned and said: "Sir Kenneth, give me your weapon."

Malone hesitated for a long, long second. But Burris' eye was on him, and he could interpret the look without much trouble. There was only one thing for him to do. He pulled out his .44, ejected the remaining cartridge in his palm—and reminded himself to reload the gun as soon as he got it back—and handed the weapon to the Queen, butt foremost.

She took the butt of the revolver in her right hand, leaned out the window of the car, and said in a fine, distinct voice: "Kneel, Andrew."

Malone watched with wide, astonished eyes as Andrew J. Burris, Director of the FBI, went to one knee in a low and solemn genuflection. Queen Elizabeth Thompson nodded her satisfaction.

She tapped Burris gently on each shoulder with the muzzle of the gun. "I knight thee Sir Andrew," she said. She cleared her throat. "My, this desert air is dry—Rise, Sir Andrew, and know that you are henceforth Knight Commander of the Queen's Own FBI."

"Thank you, Your Majesty," Burris said humbly.

He rose to his feet silently. The Queen withdrew into the car again and handed the gun back to Malone. He thumbed cartridges into the chambers of the cylinder and listened dumbly.

"Your Majesty," Burris said, "this is Dr. Harry Gamble, the head of Project Isle. Dr. Gamble, this is Her Majesty the Queen; Lady Barbara Wilson, her . . . uh . . . her lady in waiting; Sir Kenneth Malone; and King . . . I mean Sir Thomas Boyd." He gave the four a single bright impartial smile. Then he tore his eyes away from the others, and bent his gaze on Sir Kenneth Malone. "Come over here a minute, Malone," he said, jerking his thumb over his shoulder. "I want to talk to you."

Malone climbed out of the car and

went around to meet Burris. He felt just a little worried as he followed the Director away from the car. True, he had sent Burris a long telegram the night before, in code. But he hadn't expected the man to show up at Yucca Flats. There didn't seem to be any reason for it.

And when there isn't any reason, Malone told himself sagely, it's a bad one.

"What's the trouble, chief?" he asked.

Burris sighed. "None so far," he said quietly. "I got a report from the Nevada State Patrol, and ran it through R&I. They identified the men you killed, all right—but it didn't do us any good. They're hired hoods."

"Who hired them?" Malone said.

Burris shrugged. "Somebody with money," he said. "Hell, men like that would kill their own grandmothers if the price were right—you know that. We can't trace them back any farther."

Malone nodded. That was, he had to admit, bad news. But then, when had he last had any good news?

"We're nowhere near our telepathic spy," Burris said. "We haven't come any closer than we were when we started. Have you got anything? Anything at all, no matter how small?"

"Not that I know of, sir," Malone said.

"What about the little old lady . . . what's her name? Thompson. Anything from her?"

Malone hesitated. "She has a close fix on the spy, sir," he said slowly, "but she doesn't seem able to identify him right away."

"What else does she want?" Burris said. "We've made her Queen and given her a full retinue in costume; we've let her play roulette and poker with Government money. Does she want to hold a mass execution? If she does, I can supply some congressmen, Malone. I'm sure it could be arranged." He looked at the agent narrowly. "I might even be able to supply an FBI man or two," he added.

Malone swallowed hard. "I'm trying the best I can, sir," he said. "What about the others?"

Burris looked even unhappier than usual. "Come along," he said. "I'll show you."

When they got back to the car, Dr. Gamble was talking spiritedly with Her Majesty about Roger Bacon. "Before my time, of course," the Queen was saying, "but I'm sure he was a most interesting man. Now when dear old Marlowe wrote his 'Faust,' he and I had several long discussions about such matters. Alchemy—"

Burris interrupted with: "I beg your pardon, Your Majesty, but we must get on. Perhaps you'll be able to continue your . . . ah . . . audience later." He turned to Boyd. "Sir Thomas," he said with an effort, "drive directly to the Westinghouse buildings. Over that way." He pointed. "Dr. Gamble will ride with you, and the rest of us will follow in the second car. Let's move."

He stepped back as the project head got into the car, and watched it roar off. Then he and Malone went to the

second car, another FBI Lincoln. Two agents were sitting in the back seat, with a still figure between them.

With a shock, Malone recognized William Logan and the agents he'd detailed to watch the telepath. Logan's face did not seem to have changed expression since Malone had seen it last, and he wondered wildly if perhaps it had to be dusted once a week.

He got in behind the wheel and Burris slid in next to him.

"Westinghouse," Burris said. "And let's get there in a hurry."

"Right," Malone said, and started the car.

"We just haven't had a single lead," Burris said. "I was hoping you'd come up with something. Your telegram detailed the fight, of course, and the rest of what's been happening—but I hoped there'd be something more."

"There isn't," Malone was forced to admit. "All we can do is try to persuade Her Majesty to tell us—"

"Oh, I know it isn't easy," Burris said. "But it seems to me—"

By the time they'd arrived at the administrative offices of Westinghouse's psionics research area, Malone found himself wishing that something would happen. Possibly, he thought, lightning might strike, or an earthquake swallow everything up. He was, suddenly, profoundly tired of the entire affair.

VIII

Four days later, he was more than tired. He was exhausted The six psychopaths — including Her Majesty Queen Elizabeth I—had been housed in a converted dormitory in the Westinghouse area, together with four highly nervous and even more highly trained and investigated psychiatrists from St. Elizabeths in Washington. The Convention of Nuts, as Malone called it privately, was in full swing. And it was every bit as strange as he'd thought it was going to be. Unfortunately, five of the six—Her Majesty being the only exception—were completely out of contact with the world. The psychiatrists referred to them in worried tones as "unavailable for therapy," and spent most of their time brooding over possible ways of bringing them back into the real world for a while.

Malone stayed away from the five who were completely psychotic. The weird babblings of fifty-year-old Barry Miles disconcerted him. They sounded like little Charlie O'Neill's strange semi-connected jabber, but Westinghouse's Dr. O'Connor said that it seemed to represent another phenomenon entirely. William Logan's blank face was a memory of horror, but the constant tinkling giggles of Ardith Parker, the studied and concentrated way that Gordon Macklin wove meaningless patterns in the air with his waving fingers, and the rhythmless, melodyless humming that seemed to be all there was to the personality of Robert Cassiday were simply too much for Malone. Taken singly, each was frightening and remote; all together, they wove a picture of in-

sanity that chilled him more than he wanted to admit.

When the seventh telepath was flown in from Honolulu, Malone didn't even bother to see her. He let the psychiatrists take over directly, and simply avoided their sessions.

Queen Elizabeth I, on the other hand, he found genuinely likeable. According to the psych boys, she had been—as both Malone and Her Majesty had theorized—heavily frustrated by being the possessor of a talent which no one else recognized. Beyond that, the impact of other minds was disturbing; there was a slight loss of identity which seemed to be a major factor in every case of telepathic insanity. But the Queen had compensated for her frustrations in the easiest possible way; she had simply traded her identity for another one, and had rationalized a single, overruling delusion: that she was Queen Elizabeth I of England, still alive and wrongfully deprived of her throne.

"It's a beautiful rationalization," one of the psychiatrists said with more than a trace of admiration in his voice. "Complete and thoroughly consistent. She's just traded identities—and everything else she does—*everything* else—stems logically out of her delusional premise. Beautiful."

She might have been crazy, Malone realized. But she was a long way from stupid

The project was in full swing. The only trouble was that they were no nearer finding the telepath than they had been three weeks before. With five completely blank human beings to work with, and the sixth Queen Elizabeth (Malone heard privately that the last telepath, the girl from Honolulu, was no better than the first five; she had apparently regressed into what one of the psychiatrists called a "non-identity childhood syndrome." Malone didn't know what it meant, but it sounded terrible.) Malone could see why progress was their most difficult commodity.

Dr. Harry Gamble, the head of Project Isle, was losing poundage by the hour with worry. And, Malone reflected, he could ill afford it.

Burris, Malone and Boyd had set themselves up in a temporary office within the Westinghouse area. The director had left his assistant in charge in Washington. Nothing, he said over and over again, was as important as the spy in Project Isle.

Apparently Boyd had come to believe that, too. At any rate, though he was still truculent, there were no more outbursts of rebellion.

But, on the fourth day:

"What do we do now?" Burris asked

"Shoot ourselves," Boyd said promptly.

"Now, look here—" Malone began, but he was overruled.

"Boyd," Burris said levelly, "if I hear any more of that sort of pessimism, you're going to be an exception to the beard rule. One more crack out of you, and you can go out and buy yourself a razor."

Boyd put his hand over his chin

protectively, and said nothing at all.

"Wait a minute," Malone said. "Aren't there any *sane* telepaths in the world?"

"We can't find any," Burris said. "We—"

There was a knock at the office door.

"Who's there?" Burris called.

"Dr. Gamble," said the man's surprisingly baritone voice.

Burris called: "Come in, doctor," and the door opened. Dr. Gamble's lean face looked almost haggard.

"Mr. Burris," he said, extending his arms a trifle, "can't anything be done?" Malone had seen Gamble speaking before, and had wondered if it would be possible for the man to talk with his hands tied behind his back. Apparently it wouldn't be. "We feel that we are approaching a critical stage in Project Isle," the scientist said, enclosing one fist within the other hand. "If anything more gets out to the Soviets, we might as well publish our findings"—a wide, outflung gesture of both arms—"in the newspapers."

Burris stepped back. "We're doing the best we can, Dr. Gamble," he said. All things considered, his obvious try at radiating confidence was nearly successful. "After all," he went on, "we know a great deal more than we did four days ago. Miss Thompson has assured us that the spy is right here, within the compound of Yucca Flats Labs. We've bottled everything up in this compound, and I'm confident that no information is at present getting through to the Soviet Government. Miss Thompson agrees with me."

"Miss Thompson?" Gamble said, one hand at his bearded chin.

"The Queen," Burris said.

Gamble nodded and two fingers touched his forehead. "Ah," he said. "Of course." He rubbed at the back of his neck. "But we can't keep everybody who's here now locked up forever. Sooner or later we'll have to let them"—his left hand described the gesture of a man tossing away a wad of paper—"go." His hands fell to his sides. "We're lost, unless we can find that spy."

"We'll find him," Burris said with a show of great confidence.

"But—"

"Give her time," Burris said. "Give her time. Remember her mental condition."

Boyd looked up. "Rome," he said in an absent fashion, "wasn't built in a daze."

Burris glared at him, but said nothing. Malone filled the conversational hole with what he thought would be nice, and hopeful, and untrue.

"We know he's someone on the reservation, so we'll catch him eventually," he said. "And as long as his information isn't getting into Soviet hands, we're safe." He glanced at his wrist watch

Dr. Gamble said: "But—"

"My, my," Malone said. "Almost lunchtime. I have to go over and have lunch with Her Majesty. Maybe she's dug up something more."

"I hope so," Dr. Gamble said, ap-

parently successfully deflected "I do hope so."

"Well," Malone said, "pardon me." He shucked off his coat and trousers. Then he proceeded to put on the doublet and hose that hung in the little office closet. He shrugged

"One more crack out of you . . ."

into the fur-trimmed, slash-sleeved coat, adjusted the plumed hat to his satisfaction with great care, and gave Burris and the others a small bow. "I go to an audience with Her Majesty, gentlemen," he said in a grave, well-modulated voice. "I shall return anon."

He went out the door and closed it carefully behind him. When he had gone a few steps he allowed himself the luxury of a deep sigh.

Then he went outside and across the dusty street to the barracks where Her Majesty and the other telepaths were housed. No one paid any attention to him, and he rather missed the stares he'd become used to drawing. But by now, everyone was used to seeing Elizabethan clothing. Her Majesty had arrived at a new plateau.

She would now allow no one to have audience with her unless he was properly dressed. Even the psychiatrists—whom she had, with a careful sense of meiosis, appointed Physicians to the Royal House—had to wear the stuff.

Malone went over the whole case in his mind—for about the thousandth time, he told himself bitterly.

Who could the telepathic spy be? It was like looking for a needle in a rolling stone, he thought Or something. He did remember clearly that a stitch in time saved nine, but he didn't know nine what, and suspected it had nothing to do with his present problem.

How about Dr. Harry Gamble, Malone thought. It seemed a little unlikely that the head of Project Isle would be spying on his own men—particularly since he already had all the information. But, on the other hand, he was just as probable a spy as anybody else.

Malone moved onward Dr. Thomas O'Connor, the Westinghouse psionics man, was the next nominee Before Malone had actually found Her Majesty, he had had a suspicion that O'Connor had cooked the whole thing up to throw the FBI off the trail and confuse everybody, and that he'd intended merely to have the FBI chase ghosts while the real spy did his work undetected.

But what if O'Connor were the spy himself a telepath? What if he were so confident of his ability to throw the Queen off the track that he had allowed the FBI to find all the other telepaths? There was another argument for that: he'd had to report the findings of his machine no matter what it cost him; there were too many other men on his staff who knew about it.

O'Connor was a perfectly plausible spy, too. But he didn't seem very likely. The head of a Government project is likely to be a much-investigated man. Could any tie-up with Russia—even a psionic one—stand against that kind of investigation? Malone doubted it.

Malone thought of the psychiatrists. There wasn't any evidence, that was the trouble. There wasn't any evidence either way.

Then he wondered if Boyd had been thinking of him, Malone, as the possible spy. Certainly it worked in reverse Boyd—

No. That was silly.

Malone told himself that he might as well consider Andrew J. Burris.

Ridiculous. Absolutely ridic—

Well, Queen Elizabeth had seemed pretty certain when she'd pointed him

out in Dr. Dowson's office. And even though she'd changed her mind, how much faith could be placed in Her Majesty? After all, if she'd made a mistake about Burris, she could just as easily have made a mistake about the spy's being at Yucca Flats. In that case, Malone thought sadly, they were right back where they'd started from. Behind their own goal line.

One way or another, though, Her Majesty had made a mistake. She'd pointed Burris out as the spy, and then she'd said she'd been wrong. Either Burris was a spy or he wasn't. You couldn't have it both ways.

Why couldn't you? Malone thought suddenly. And then something Burris himself had said came back to him, something that—

I'll be damned, he thought.

He came to a dead stop in the middle of the street. In one sudden flash of insight, all the pieces of the case he'd been looking at for so long fell together and formed one consistent picture. The pattern was complete.

Malone blinked

In that second, he knew exactly who the spy was

A jeep honked raucously and swerved around him. The driver leaned out to curse and remained to stare. Malone was already halfway back to the offices.

On the way, he stopped in at another small office, this one inhabited by the two FBI men from Las Vegas. He gave a series of quick orders, and got the satisfaction, as he left, of seeing one of the FBI men grabbing for a phone in a hurry. It was good to be *doing* things again, important things.

Burris, Boyd and Dr. Gamble were still talking as Malone entered.

"That," Burris said, "was one hell of a quick lunch. What's Her Majesty doing now—running a diner?"

Malone ignored the bait. "Gentlemen," he said solemnly, "Her Majesty has asked that all of us attend her in audience. She has information of the utmost gravity to impart, and wishes an audience at once."

Burris looked startled. "Has she—" he began, and stopped, leaving his mouth open and the rest of the sentence unfinished.

Malone nodded gravely. "I believe, gentlemen," he said, "that Her Majesty is about to reveal the identity of the spy who has been battening on Project Isle."

The silence didn't last three seconds.

"Let's go," Burris snapped. He and the others headed for the door.

"Gentlemen!" Malone sounded properly shocked and offended. "Your dress!"

"Oh, *no*," Boyd said. "Not now."

Burris simply said: "You're quite right. Get dressed, Boyd . . . I mean, of course, Sir Thomas."

While Burris, Boyd and Dr. Gamble were dressing, Malone put in a call to Dr. O'Connor and told him to be at Her Majesty's court in ten minutes—and in full panoply. O'Connor, not unnaturally, balked a little at first. But Malone talked fast and sounded as urgent as he felt. At

last he got the psionicist's agreement.

Then he put in a second call to the psychiatrists from St. Elizabeths and told them the same thing. More used to the strange demands of neurotic and psychotic patients, they were readier to comply.

Everyone, Malone realized with satisfaction, was assembled. Even Burris and the others were ready to go. Beaming, he led them out.

Ten minutes later, there were nine men in Elizabethan costume standing outside the room which had been designated as the Queen's Court. Dr. Gamble's costume did not quite fit him; his sleeve ruffs were halfway up to his elbows and his doublet had an unfortunate tendency to creep. The St. Elizabeths' men, all four of them, looked just a little like moth-eaten versions of old silent pictures. Malone looked them over with a somewhat sardonic eye. Not only did he have the answer to the whole problem that had been plaguing them, but *his* costume was a stunning, perfect fit.

"Now, I want you men to let me handle this," Malone said. "I know just what I want to say, and I think I can get the information without too much trouble."

One of the psychiatrists spoke up. "I trust you won't disturb the patient, Mr. Malone," he said.

"Sir Kenneth," Malone snapped.

The psychiatrist looked both abashed and worried. "I'm sorry," he said doubtfully.

Malone nodded. "That's all right," he said. "I'll try not to disturb Her Majesty unduly."

The psychiatrists conferred. When they came out of the huddle one of them—Malone was never able to tell them apart—said: "Very well, we'll let you handle it. But we will be forced to interfere if we feel you're . . . ah . . . going too far."

Malone said: "That's fair enough, gentlemen. Let's go."

He opened the door.

It was a magnificent room. The whole place had been done over in plastic and synthetic fibers to look like something out of the Sixteenth Century. It was as garish, and as perfect, as a Hollywood movie set—which wasn't surprising, since two stage designers had been hired away from color-TV spectaculars to set it up. At the far end of the room, past the rich hangings and the flaming chandeliers, was a great throne, and on it Her Majesty was seated. Lady Barbara reclined on the steps at her feet.

Malone saw the expression on Her Majesty's face. He wanted to talk to Barbara—but there wasn't time. Later, there might be. Now, he collected his mind and drove one thought at the Queen, one single powerful thought:

Read me! You know by this time that I have the truth—but read deeper!

The expression on her face changed suddenly. She was smiling a sad, gentle little smile. Lady Barbara, who had looked up at the approach of Sir Kenneth and his entourage, relaxed again, but her eyes remained

on Malone. "You may approach, my lords," said the Queen.

Sir Kenneth led the procession, with Sir Thomas and Sir Andrew close behind him. O'Connor and Gamble came next, and bringing up the rear were the four psychiatrists. They strode slowly along the red carpet that stretched from the door to the foot of the throne. They came to a halt a few feet from the steps leading up to the throne, and bowed in unison.

"You may explain, Sir Kenneth," Her Majesty said.

"Your Majesty understands the conditions?" Malone asked.

"Perfectly," said the Queen. "Proceed."

Now the expression on Barbara's face changed, to wonder and a kind of fright. Malone didn't look at her. Instead, he turned to Dr. O'Connor.

"Dr. O'Connor, what are your plans for the telepaths who have been brought here?" He shot the question out quickly, and O'Connor was caught off-balance.

"Well . . . ah . . . we would like their co-operation in further research which we . . . ah . . . plan to do into the actual mechanisms of telepathy. Provided, of course"—he coughed gently—"provided that they become . . . ah . . . accessible. Miss . . . I mean, of course, Her Majesty has already been a great deal of help." He gave Malone an odd look. It seemed to say: *what's coming next?*

Malone simply gave him a nod, and a "Thank you, doctor," and turned to Burris. He could feel Barbara's eyes on him, but he went on with his prepared questions. "Chief," he said, "what about you? After we nail our spy, what happens . . . to Her Majesty, I mean? You don't intend to stop giving her the homage due her, do you?"

Burris stared, openmouthed. After a second he managed to say: "Why, no, of course not, Sir Kenneth. That is"—and he glanced over at the psychiatrists—"if the doctors think—"

There was another hurried consultation. The four psychiatrists came out of it with a somewhat shaky statement to the effect that treatments which had been proven to have some therapeutic value ought not to be discontinued, although of course there was always the chance that—

"Thank you, gentlemen," Malone said smoothly. He could see that they were nervous, and no wonder; he could imagine how difficult it was for a psychiatrist to talk about a patient in her presence. But they'd already realized that it didn't make any difference; their thoughts were an open book, anyway.

Lady Barbara said: "Sir . . . I mean Ken . . . are you going to—"

"What's this all about?" Burris snapped.

"Just a minute, Sir Andrew," Malone said. "I'd like to ask one of the doctors here—or all of them, for that matter—one more question." He whirled and faced them. "I'm assuming that not one of these persons is legally responsible for his or her actions. Is that correct?"

Another hurried huddle. The psych boys were beginning to remind Malone of a semi-pro football team in rather unusual uniforms.

Finally one of them said: "You are correct. According to the latest statutes, all of these persons are legally insane—including Her Majesty." He paused and gulped. "I except the FBI, of course—and ourselves." Another pause. "And Dr. O'Connor and Dr. Gamble"

"And," said Lady Barbara, "me." She smiled sweetly at them all.

"Ah," the psychiatrist said. "Certainly. Of course." He retired into his group with some confusion.

Malone was looking straight at the throne. Her Majesty's countenance was serene and unruffled.

Barbara said suddenly: "You don't mean . . . but she—" and closed her mouth. Malone shot her one quick look, and then turned to the Queen.

"Well, Your Majesty?" he said. "You have seen the thoughts of every man here. How do they appear to you?"

Her voice contained both tension and relief. "They are all good men, basically—and kind men," she said. "And they believe us. That's the important thing, you know. Their belief in us— Just as you did that first day we met. We've needed belief for so long . . . for so long—" Her voice trailed off; it seemed to become lost in a constellation of thoughts. Barbara had turned to look up at Her Majesty.

Malone took a step forward, but Burris interrupted him. "How about the spy?" he said.

Then his eyes widened. Boyd, standing next to him, leaned suddenly forward. "That's why you mentioned all that about legal immunity because of insanity," he whispered. "Because—"

"No," Barbara said. "No. She couldn't . . . she's not—"

They were all looking at Her Majesty, now. She returned them stare for stare, her back stiff and straight and her white hair enhaloed in the room's light. "Sir Kenneth," she said —and her voice was only the least bit unsteady—"they all think *I'm* the spy."

Barbara stood up. "Listen," she said. "I didn't like Her Majesty at first . . . well, she was a patient, and that was all, and when she started putting on airs . . . but since I've gotten to know her I do like her. I like her because she's good and kind herself, and because . . . because she wouldn't be a spy. She couldn't be. No matter what any of you think . . . even you . . . Sir Kenneth!"

There was a second of silence.

"Of course she's not," Malone said quietly. "She's no spy."

"Would I spy on my own subjects?" she said. "Use your reason!"

"You mean . . ." Burris began, and Boyd finished for him:

". . . She isn't?"

"No," Malone snapped. "She isn't. Remember, you said it would take a telepath to catch a telepath?"

"Well—" Burris began.

"Well, Her Majesty remembered

it," Malone said. "And acted on it."

Barbara remained standing. She went to the Queen and put an arm around the little old lady's shoulder. Her Majesty did not object. "I knew," she said. "You couldn't have been a spy."

"Listen, dear," the Queen said. "Your Kenneth has seen the truth of the matter. Listen to him."

"Her Majesty not only caught the spy," Malone said, "but she turned the spy right over to us."

He turned at once and went back down the long red carpet to the door. *I really ought to get a sword,* he thought, and didn't see Her Majesty smile. He opened the door with a great flourish and said quietly: "Bring him in, boys."

The FBI men from Las Vegas marched in. Between them was their prisoner, a boy with a vacuous face, clad in a strait jacket that seemed to make no difference at all to him. His mind was—somewhere else. But his body was trapped between the FBI agents: the body of William Logan.

"Impossible," one of the psychiatrists said.

Malone spun on his heel and led the way back to the throne. Logan and his guards followed closely.

"Your Majesty," Malone said, "may I present the prisoner?"

"Perfectly correct, Sir Kenneth," the Queen said. "Poor Willie is your spy. You won't be too hard on him, will you?"

"I don't think so, Your Majesty," Malone said. "After all—"

"Now wait a minute," Burris exploded. "How did *you* know any of this?"

Malone bowed to Her Majesty, and winked at Barbara. He turned to Burris. "Well," he said, "I had one piece of information none of the rest of you had. When we were in the Desert Edge Sanitarium, Dr. Dowson called you on the phone. Remember?"

"Sure I remember," Burris said. "So?"

"Well," Malone said, "Her Majesty said she knew just where the spy was. I asked her where—"

"Why didn't you tell me?" Burris screamed. "You knew all this time and you didn't tell me?"

"Hold on," Malone said. "I asked her where—and she said: 'He's right there.' And she was pointing right at your image on the screen."

Burris opened his mouth. Nothing came out. He closed it and tried again. At last he managed one word.

"Me?" he said.

"You," Malone said. "But that's what I realized later. She wasn't pointing at you. She was pointing at Logan, who was in the next room."

Barbara whispered: "Is that right, Your Majesty?"

"Certainly, dear," the Queen said calmly. "Would I lie to Sir Kenneth?"

Malone was still talking. "The thing that set me off this noon was something you said, Sir Andrew," he went on. "You said there weren't any sane telepaths—remember?"

Burris, incapable of speech, merely nodded.

"But according to Her Majesty," Malone said, "we had every telepath in the United States right here. She told me that—and I didn't even see it!"

"Don't blame yourself, Sir Kenneth," the Queen put in. "I did do my best to mislead you, you know."

"You sure did!" Malone said. "And later on, when we were driving here, you said the spy was 'moving around.' That's right; he was in the car behind us, going eighty miles an hour."

Barbara stared. Malone got a lot of satisfaction out of that stare. But there was still more ground to cover.

"Then," he said, "you told us he was here at Yucca Flats—after we brought him here! It had to be one of the other six telepaths."

The psychiatrist who'd muttered: "Impossible," was still muttering it. Malone ignored him.

"And when I remembered her pointing at you," Malone told Burris, "and remembered that she'd only said: 'He's right there,' I knew it had to be Logan. You weren't there. You were only an image on a TV screen. Logan was there—in the room behind the phone."

Burris had found his tongue. "All right," he said. "O K. But what's all this about misleading us—and why didn't she tell us right away, anyhow?"

Malone turned to Her Majesty on the throne. "I think that the Queen had better explain that—if she will."

Queen Elizabeth Thompson nodded very slowly. "I . . . I only wanted you to respect me," she said. "To treat me properly." Her voice sounded uneven, and her eyes were glistening with unspilled tears. Lady Barbara tightened her arm about the Queen's shoulders once more.

"It's all right," she said. "We do —respect you."

The Queen smiled up at her.

Malone waited. After a second Her Majesty continued.

"I was afraid that as soon as you found poor Willie you'd send me back to the hospital," she said. "And Willie couldn't tell the Russian agents any more once he'd been taken away. So I thought I'd just . . . just let things stay the way they were as long as I could That's . . . that's all."

Malone nodded. After a second he said: "You see that we couldn't possibly send you back now, don't you?"

"I—"

"You know all the State Secrets, Your Majesty," Malone said. "We would rather that Dr. Harman in San Francisco didn't try to talk you out of them. Or anyone else."

The Queen smiled tremulously. "I know too much, do I?" she said. Then her grin faded. "Poor Dr. Harman," she said.

"Poor Dr. Harman?"

"You'll hear about him in a day or so," she said. "I. . . peeked inside his mind. He's very ill."

"Ill?" Lady Barbara asked.

"Oh, yes," the Queen said. The trace of a smile appeared on her face. "He thinks that all the patients in the hospital can see inside his mind."

"Oh, my," Lady Barbara said—and began to laugh It was the nicest sound Malone had ever heard.

"Forget Harman," Burris snapped. "What about this spy ring? How was Logan getting his information out?"

"I've already taken care of that," Malone said. "I had Desert Edge Sanitarium surrounded as soon as I knew what the score was." He looked at one of the agents holding Logan.

"They ought to be in the Las Vegas jail within half an hour," the agent said in confirmation.

"Dr. Dowson was in on it, wasn't he, Your Majesty?" Malone said.

"Certainly," the Queen said. Her eyes were suddenly very cold. "I hope he tries to escape. I hope he tries it."

Malone knew just how she felt

One of the psychiatrists spoke up suddenly. "I don't understand it," he said. "Logan is completely catatonic. Even if he could read minds, how could he tell Dowson what he'd read? It doesn't make sense."

"In the first place," the Queen said patiently, "Willie isn't catatonic. He's just *busy*, that's all. He's only a boy, and . . . well, he doesn't much like being who he is. So he visits other people's minds, and that way he becomes *them* for a while. You see?"

"Vaguely," Malone said. "But how did Dowson get his information? I had everything worked out but that."

"I know you did," the Queen said, "and I'm proud of you. I intend to award you with the Order of the Bath for this day's work."

Unaccountably, Malone's chest swelled with pride.

"As for Dr. Dowson," the Queen said, "that traitor . . . *hurt* Willie. If he's hurt enough, he'll come back." Her eyes weren't hard any more. "He didn't want to be a spy, really," she said, "but he's just a boy, and it must have sounded rather exciting. He knew that if he told Dowson everything he'd found out, they'd let him go—go away again."

There was a long silence.

"Well," Malone said, "that about wraps it up. Any questions?"

He looked around at the men, but before any of them could speak up Her Majesty rose.

"I'm sure there are questions," she said, "but I'm really very tired. My lords, you are excused." She extended a hand. "Come, Lady Barbara," she said. "I think I really may need that nap, now."

Malone put the cuff links in his shirt with great care. They were great stones, and Malone thought that they gave his costume that necessary Elizabethan flair.

Not that he was wearing the costume of the Queen's Court now. Instead, he was dressed in a tailor-proud suit of dark blue, a white-on-white shirt and no tie. He selected one of a gorgeous peacock pattern from his closet rack

Boyd yawned at him from the bed in the room they were sharing. "Stepping out?" he said.

"I am," Malone said with restraint. He whipped the tie round his neck and drew it under the collar.

"Anybody I know?"

"I am meeting Lady Barbara, if you wish to know," Malone said.

"Come down," Boyd said. "Relax. Anyhow, I've got a question for you. There was one little thing Her Everlovin' Majesty didn't explain."

"Yes?" said Malone.

"Well, about those hoods who tried to gun us down," Boyd said. "Who hired 'em? And why?"

"Dowson," Malone said. "He wanted to kill us off, and then kidnap Logan from the hotel room. But we foiled his plan—by killing his hoods. By the time he could work up something else, we were on our way to Yucca Flats."

"Great," Boyd said. "And how did you find out this startling piece of information? There haven't been any reports in from Las Vegas, have there?"

"No," Malone said.

"O.K.," Boyd said. "I give up, Mastermind."

Malone wished Boyd would stop using that nickname. The fact was—as he, and apparently nobody else, was willing to recognize—that he wasn't anything like a really terrific FBI agent. Even Barbara thought he was something special.

He wasn't, he knew.

He was just lucky.

"Her Majesty informed me," Malone said.

"Her—" Boyd stood with his mouth dropped open, like a fish waiting for some bait. "You mean she knew?"

"Well," Malone said, "she did know the guys in the Buick weren't the best in the business—and she knew all about the specially-built FBI Lincoln. She got that from our minds." He knotted his tie with an air of great aplomb, and went slowly to the door. "And she knew we were a good team. She got that from our minds, too."

"But," Boyd said. After a second he said: "But," again, and followed it with: "Why didn't she tell us?"

Malone opened the door.

"Her Majesty wished to see the Queen's Own FBI in action," said Sir Kenneth Malone.

THE END

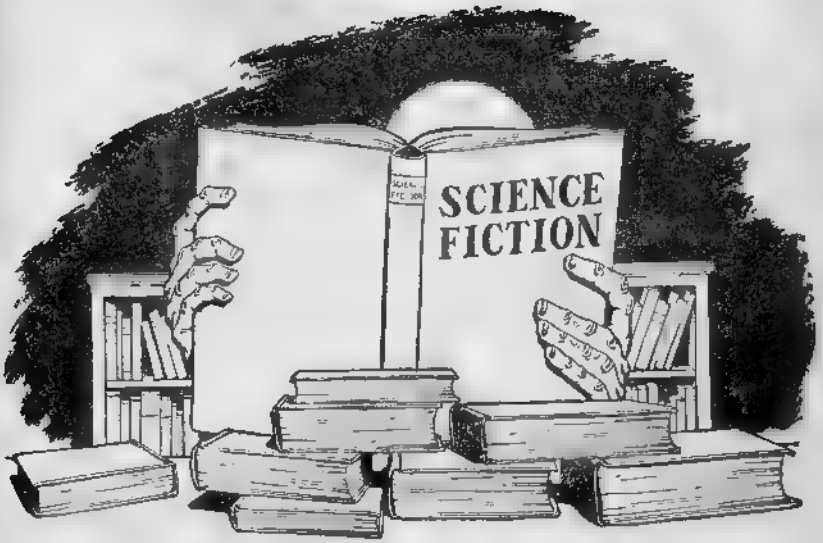
THE ANALYTICAL LABORATORY

There were six stories in the July issue, so the point-scores tend to run higher. The standings came out thus:

PLACE	STORY	AUTHOR	POINTS
1.	But I Don't Think . . .	Randall Garrett	2.33
2.	Dorsai! (Conclusion)	Gordon R. Dickson	2.40
3.	Leverage	Christopher Anvil	3.33
4.	Straw	Algis Budrys	3.41
5.	Broken Tool	Theodore L. Thomas	3.95

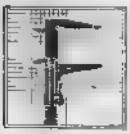
THE EDITOR.

THE REFERENCE LIBRARY



BY P. SCHUYLER MILLER

OVER THERE



FROM time to time I am asked why—since Astounding has had a British edition for a long time — I don't also cover the new British books I'll admit that it is really no answer to say that any good British science fiction will eventually show up in the United States, for that simply isn't true. In fact, the shoe is on the other foot: some excellent science fiction by American authors—notably James Blish—has had only paperback publication in the United States, but has come out in a good hardbound edition in England. Other American authors have had their first book publication "over there" — Alfred

Bester's "The Stars My Destination," for example, which was "Tiger, Tiger" in England, and Ray Bradbury's latest short-story collection, which was out in England before it appeared in the United States with a different name and somewhat different contents.

My excuse—you may not want to call it a reason—is that it is simply too hard for the average reader, outside a large city with good bookstores, to get hold of American books, let alone British titles. If you're in New York City, the British Book Centre says that it will get you any British book that isn't also published in America—but some enlightening correspondence indicates that they just don't know what SF is. Good bookstores may be willing to send for English books for you, but you will have to expect to pay duty and other importation charges on top of the publisher's original price. Finally, collectors such as Pittsburgh's Drice Archer—who did a guest column on English books some time ago—get theirs from English specialty booksellers such as Kenneth Slater, of whom more presently.

It should be no news to American readers that England has produced some of the best science-fiction writers we have, and we are a long way from seeing work by all of them in our own magazines. It may be news to some of you that Britain now has four healthy SF magazines, and has had more, and that at least one of them—*Nebula,* published in Glasgow Scotland—sells on some newsstands in New York. Since the same sort of friendly competition flourishes among British SF editors and writers as in the American field, *Nebula's* editor/publisher, Peter Hamilton, will not take it amiss if I say that his three rivals come from London: Ted Carnell's *New Worlds, Science Fantasy,* and the new *Science Fiction Adventures.* The latter started as a British edition of Larry Shaw's United States magazine, but went wholly British.

To get back to Scotland, I am indebted to Peter Hamilton and to Kenneth Slater, who runs *his* book department, "Something to Read," for permission to reprint and comment on the results of a readers' poll of "Best Science Fiction," which Slater reported in February *Nebula.* As you'll see, there are some striking differences between the twenty-two most popular books with British readers and the twenty-four "best" you selected in 1956. Two of the British choices, it is true, came out after our poll was over; I rather think one or both would have been in your own lists too, if you'd read them.

To get rid of the other differences, which will enable you to snort at my conclusions if you like, our poll brought in a good many more ballots than Ken Slater's, even if you exclude the composite ballots sent in by several SF clubs. On the other hand, he asked his readers to rate the books in their lists, from their all-time favorite on down the scale, and he naturally found that his

"Placing" list, scored much the way John Campbell scores your ballots for the best stories in each issue of Astounding, boosted some strong favorites up near the top, compared with his "Mentioned" list, based on the number of times a book was listed by different readers.

The parallel lists that I am giving you, therefore, are your "straight" selection from the 1956 Astounding poll, without the club choices, and Ken Slater's "Mentioned" list. There are twenty-four books in our list to twenty-two in his, simply because several books got the same number of votes and there was no ground for ruling out any of them just to get a neat count.

"THE BEST SCIENCE FICTION" ASTOUNDING POLL

1. "Adventures in Time and Space" —Healy & McComas
2. "City"—Simak
3. "The Martian Chronicles"—Bradbury
4. "More Than Human—Sturgeon
5. "Slan"—van Vogt
6. "The Man Who Sold the Moon" —Heinlein
7. "The Demolished Man"—Bester
8. "The *Astounding Science Fiction Anthology*"—Campbell
9. "Childhood's End"—Clarke
10. "1984"—Orwell
11. "The World of Null A"—van Vogt
12. "Foundation"—Asimov
13. "Who Goes There?"—Campbell
14. "To the End of Time" (omnibus)—Stapledon
15. "Brave New World"—Huxley
16. "Seven Famous Novels" (omnibus)—Wells
17. "The Green Hills of Earth"—Heinlein
18. "Mission of Gravity"—Clement
19. "The Humanoids"—Williamson
20. "Lest Darkness Fall"—de Camp
21. "I, Robot"—Asimov
22. "The Illustrated Man"—Bradbury
23. "The City and the Stars"—Clarke
24. "The Space Merchants"—Pohl & Kornbluth

NEBULA POLL

1. "More Than Human"—Sturgeon
2. "The Demolished Man"—Bester
3. "I, Robot"—Asimov
4. "Foundation"—Asimov
5. "The City and the Stars"—Clarke
6. "Children of the Atom"—Shiras
7. "The Day of the Triffids"—Wyndham
8. "The Caves of Steel"—Asimov
9. "Tiger, Tiger" ("The Stars My Destination")—Bester*
10. "The Death of Grass" ("No Blade of Grass")—Christopher*
11. "Childhood's End"—Clarke
12. The Puppet Masters" — Heinlein
13. "Untouched by Human Hands" —Sheckley
14. "City"—Simak
15. "Slan"—van Vogt

* *Not published in U.S. by 1956*

16. "The Illustrated Man" — Bradbury
17. "Prelude to Space"—Clarke
18. "One in 300"—McIntosh
19. "Christmas Eve" ("Not This August")—Kornbluth
20. "A Mirror for Observers" — Pangborn
21. "The Space Merchants"—Pohl & Kornbluth
22. "Stories for Tomorrow" — Sloane, ed.

We in the United States voted heavily for anthologies. Healy and McComas' great "Adventure in Time and Space," which gleaned much of the best short fiction from the earlier years of this magazine in particular, led the poll no matter how you added it up. The "Astounding Science Fiction Anthology" was in eighth place, and others came high—high enough, in fact, so that the king of anthologists, Groff Conklin, scored third in your list of favorite "authors." We also voted several short-story collections into the top group, even if you rate the connected stories, such as Bradbury's "Martian Chronicles" or Asimov's "I, Robot," as novels rather than short-story collections

Nebula's readers, in Slater's own words, "ignored" anthologies. Only one, William Sloane's excellent "Stories for Tomorrow," got into their top group; no other anthology got more than one vote. It may be, of course, that the Healy/McComas collection hasn't been published in England—if so, someone is remarkably short-sighted, just as we have been about some of their anthologies. By the same token, they didn't show much interest in short-story collections. Heinlein's two "Future History" books may not have been published over there, but Bradbury's "classic" "Martian Chronicles" certainly was—as "The Silver Locusts" —and it didn't even show.

The greatest surprise to me is that you voted strongly for the "classics," while the British readers ignored them too—even though four are by English authors: Huxley's "Brave New World," Orwell's "1984," and the omnibus volumes by Wells and Stapledon. Stapledon got only four votes, divided between two books—I suspect "Last and First Men" and "Odd John"— while H. G. Wells, English "father" of modern science fiction, got only two votes.

You can argue endlessly about what that shows about English and American SF readers, and I trust you will. Are we more conservative than the English? Are we more overawed by books that we've been told are "great," and less willing to choose for ourselves? Are the English less hidebound—at least in science fiction? You tell me.

But enough of the differences. Interestingly enough, you and your British fellow-guinea-pigs do agree on your favorite authors.

Ken Slater and I both rated authors in the same way. You weren't asked to vote for anyone, but we added up the total votes for all books by each author to get his score. On the

basis of our voting, I know that this produces some paradoxical results. I am quite certain that Alfred Bester would have rated *higher* in our own poll if you had had both his novels, instead of only "The Demolished Man," to vote for, as the British had. On the other hand, I am sure Theodore Sturgeon would have scored higher if you *hadn't* had so many of his minor books to thin out your vote.

Nebula's readers placed Asimov, Clarke, van Vogt and Bester in their top four positions. Excluding Groff Conklin, who was your No. 3 choice, because he is an editor and not a writer, your top four authors were Heinlein, van Vogt, Asimov and Clarke. The positions are different, but three of the four are the same on both sides of the Atlantic, and two years apart.

Their next three choices were Heinlein and Bradbury tied with Eric Frank Russell; yours were our own John Campbell, Bradbury and Simak. They finish with Sturgeon and Simak, we with Kuttner and Williamson. In other words, you agree with the *Nebula* readers on six of the nine top science-fiction authors of our day—and all nine, you'll note, *are* "moderns."

Ten books were on both the British and the American lists, though by no means in the same position on both. By giving each book a score that is the average of its place on the two lists, I have come up with the following "International" list of the "Ten Best" science fiction books:

1. "More Than Human" — Sturgeon
2. "The Demolished Man" — Bester
3. "City" — Simak
4. "Foundation" — Asimov
5. "Slan" — van Vogt
6. "Childhood's End — Clarke
7. "I, Robot" — Asimov
8. "The City and the Stars"— Clarke
9. "The Illustrated Man" — Bradbury
10. "The Space Merchants" — Pohl & Kornbluth

It's a list I find it hard to quarrel with. Two of the most scintillatingly brilliant science-fiction novels of any time stand first and second. The poetic, rather than the documentary Clarke is the one you remember most fondly. You voted for van Vogt's most human book, rather than his most complexly confusing ones, and the same humanity is the keynote of "City." "Foundation" and "I, Robot" are more nearly "straight" science fiction, the development of ideas and themes based in science, and you might call "Space Merchants" a postwar "Brave New World." As for the Bradbury title, I just don't know: I still prefer "Martian Chronicles." But it's a mighty good list.

NINE TOMORROWS, by Isaac Asimov. Doubleday & Co., Garden City, N. Y. 1959. 236 pp. $3.50.

Doubleday, bless 'em, have start-

ed the new year on a high key with the new "Best from F&SF" and this collection of nine recent and top Asimovs I'm going to use the book in a couple of weeks in an attempt to show a Pittsburgh supper club what good, modern SF is like.

The best of the nine stories, treating SF as a serious variety of fiction and not just entertainment, are probably the first and last. "Profession" was first published here in Astounding, in the July 1957 issue. It's a teacher's extrapolation of an educational system that has become almost completely mechanized. Youngsters are taught to read by electronic implantation, all at the same time. Later they are all "educated" in the same way, for the field of work that the computers consider most suited to their talents and the public need. But George Platen doesn't fit into the scheme, and the discovery he eventually makes about himself and his society is one that some current clamorers after schools "just like the Russians" or "just like the good old days" would do well to consider.

"The Ugly Little Boy," on the other hand—it was "Lastborn" in *Galaxy*—is a time-travel story that has its technical gimmick, but has another, honestly sentimental purpose. A three-year-old Neanderthal boy is snatched out of time for study. He must be kept penned in his Stasis-bubble, or there will be a cataclysm of displaced energies. And the young nurse who is called in to take care of the changeling, soon discovers that he is not an "ape-boy" or an experimental animal, but just a terrified, lonely, ugly little boy. And then the scientists are through with him . . .

Right up there with the other two is the first of two future mysteries, a type of story that Asimov is making all his own. "The Dying Night" is a classic puzzler with a classic armchair detective, Dr. Wendell Urth, so scared of any transportation but his own feet that he rarely gets more than a block or two from home. Three eminent astronomers, one from the Moon, one from Mercury, one from the planetoid Ceres, are on Earth for a convention when a former, Earth-bound classmate tells them he has the secret of matter-transport. He dies before he can read his paper—the paper is destroyed—but one of the three has made a microfilm of it first. Whodunit?

The companion mystery, "I'm in Marsport Without Hilda," is just as fine a puzzle but with a twist of Asimovian humor. Max, in Marsport without his wife and all set to singe himself at an old flame, has three hours to discover which of three seemingly drugged tycoons is actually a drug peddler. This one is from *Venture;* "Dying Night" from *F&SF.*

The name of Asimov is pretty well identified with robots in the SF world, and three of the stories have to do with supercomputers. Humor makes "The Feeling of Power," from *IF*, the best of these in a computer-governed galaxy, a mild little technician rediscovers arithmetic. The other two have to do with stages in the evolution of Multivac, the monster computer that

eventually fills the Universe. In "All the Troubles of the World"—*Super-Science Fiction*—Multivac is being used to predict and prevent crime, until a strange series of directives sets the bureaucrats scurrying. "The Last Question"—*SF Quarterly*—poses a question that can't be answered until the end of the Universe

We have left "The Gentle Vultures," also from *Super-Science Fiction,* and "Spell My Name with an S," which was called "S as in Zebatinsky" in the lone issue of *Star SF.* Both have the touch of wry humor: in "Vultures," a galactic race is standing by, waiting for Mankind to start a nuclear war so that their high-minded rescuers can swoop in and take over; in "Zebatinsky" one-letter change in a physicist's name sets off a chain reaction in the Pentagon—and I don't think the kicker at the end was needed.

Finally, the book is opened and closed with two gems of Asimovian verse: "I Just Make 'Em Up, See!" —which you may have seen in *F&SF* —and "Rejection Slips," which sounds like a switch on the great man's dinner speech at the 1955 Clevention.

Best Asimov — I think — since "Caves of Steel." And that's *very* good.

THE WAR OF TWO WORLDS, by Poul Anderson.

THRESHOLD OF ETERNITY, by John Brunner. Ace Books No. D-335. 1959. 108 + 148 pp. 35¢.

Two action-adventure yarns for which no previous source is given, though the Brunner story is marked "Complete & Unabridged." When the second volume of the Perri Press *Index* is out, I'll be able to identify some of these stories for you; as is, my memory won't do it.

Although the book is nothing I'd go out of my way to collect, if I weren't a completer from away back, I enjoyed the Poul Anderson half most. It is quite simple and straightforward: after a bloody war in which Mars has clobbered Earth, Spaceman Dave Arnfeld, returning to his upstate New York farm, discovers that both sides have been egged on by monsters in human guise. Aided by a Martian officer, Sevni Regelin dzu Coruthan, plus a young Martian-hating widow, plus the latter's three-year-old daughter, Dave sets out to warn both sides that they have been tricked. The manhunt takes them across the United States to Minneapolis, then to a climax in Brazil. Geography is a little careless in spots—you certainly can't go by boat from Lake Ontario to Duluth without sighting land, and you don't go through the St. Lawrence Waterway—but this may be editorial mangling.

Brunner's slightly longer share is a grand hurly-burly in which a galactic war between human and nonhuman races, in the 41st Century, involves a mysterious invisible "Being" and surges through Time that sweep up a crippled United States farmer and a French nurse living in London. Needless to say, both of them have a part

to play in defeating the Enemy, solving the mystery of the Being, and making the Universe safe for *Homo sapiens v. futuris.*

THE ENEMY STARS, by Poul Anderson. J. B. Lippincott, Philadalphia. 1959. 189 pp. $2.95.

I suppose this superior story needs very litle introduction here, since it was serialized in Astounding last year as "We Have Fed Our Sea," and universally acclaimed by you-all. I imagine it's a strong candidate for the best-of-the-year Hugo at this Labor Day's "Detention" in Detroit, though there will be strong competitors.

You remember the situation: Mankind has sent out a swarm of great starships as mobile bases for the exploration of the galaxy, but instead of condemning their crews to a generation-by-generation existence, scientists and spacers can be shuttled back and forth almost instantaneously via matter-transmitter. Then the ship gets into the field of a dead star, breaks down, and one particular crew finds that it must almost rebuild the drive or die in orbit.

There's a scientific problem, of course, in how the drive can be patched up long enough to save the ship, and then how the transmitter can be rebuilt from scratch to get them home. But the real story is in the adjustment of the four members of the crew—a wealthy physicist from Earth, a Japanese-derived navigator from one of the gentler star-worlds; a timidly rebellious son of a rock-hard Spacer father; and a chip-on-the-shoulder colonist from a world trying to cut loose from Earth's domination. Mature SF, with lots of "old-fashioned" elements professionally handled.

NOT IN SOLITUDE, by Kenneth F. Gantz. Doubleday & Co., Garden City, N. Y. 1959. 240 pp. $3.50.

This is a very difficult book to appraise. To a general reader or a beginner in science fiction, it should be one of the best novels of the year. But to a reader with any experience with science fiction themes and stereotypes, the "big" secret on which so much of the plot hinges—the nature of the Martians who lay siege to an exploring ship from Earth—will be apparent almost from the beginning, and the book has to carry itself as an interplay of clashing character between the military and civilian members of the expedition, as their situation grows more and more critical.

The author is a lieutenant colonel in the United States Air Force, editor of the *Air University Quarterly Review* and the Air Force's "Report on the Ballistic Missile," who is trying fiction for the first time. He does it extremely well, and if he keeps his hand in, should bring us some even more notable novels of realistic space adventure.

For this is a novel about Mars as it is—no red meadows of Barsoom, but endless dust and endless lichens. The *Far Venture* seems amazingly com-

modious as a first Mars-ship—it has a big crew of Air Force personnel and scientists, and carries some rather heavy armament—but present-day mass-ratio considerations may be meaningless with the type of nuclear drive they use.

The story opens with a bang: an exploring expedition into the lichen beds of the Syrtis Major has not returned or communicated, and a mysterious penetrating radiation is building up to the danger point. Colonel "Bull" Cragg, commander of the expedition, proposes to abandon the missing men, ex-physicist John Dane, reporting the expedition for Amalgamated Press and a journalistic needle in Cragg's hoof, insists that a search party go out. He gets his party—with a time limit—and what they find starts a plague of mystery and menace: Cragg knifed, mysterious signals on the radar, the drive crippled, the lichens growing at fantastic speed, culminating in a siege of the ship.

Every detail is beautifully handled and the characterization is excellent, though Dane seems unreasonably nasty. Some of the loose ends of the plot are not entirely resolved—but are they ever in actual life? In the end Dane has a better understanding of the loneliness of command, and Cragg may have gained a little tolerance for the ideas and actions of people he can't control. Even the attitude of the Martians is understandable.

This book is one reason why Poul Anderson is going to get competition when the "bests" are totted up.

STARSHIP, by Brian Aldiss (Criterion Books, New York, 1959, 256 pp. $3.50

Brian Aldiss is a "new" English writer of whom we have seen very little in this country to date. He has had a very few short stories in the magazines and anthologies, and his English short-story collection, "Space, Time and Nathaniel," drew rave reviews from those who saw it, but this is his first full-fledged book for an American publisher. I trust there will be more, because it's an excellent handling of an old theme with a new twist at the end.

This is a variant of the generations-long star voyage, in which the crew of the starship forget who they are and where they are going, deep-space radiation induces mutational changes, and inbreeding and distorted understanding produce a variety of strange cultural patterns. Not as new here as in England, perhaps, where the book was called "Non-Stop," but what matters is that it is very well done, by a writer who has built up his strange world in three dimensions, and who has deftly planted the clues that explain in the end what has really happened to the descendants of the crew who started to bring their ship home from Procyon.

We enter the story through one of the foraging tribes—the Greenes—who slowly hack their way back and forth through the reeking jungles of the monster ship. Generations before some catastrophe destroyed whole

areas, and set loose the strange, wild, hydroponically fed vegetation of another world to choke the passages of the ship. Pigs and other game run wild in the tangle, and back in Quarters, behind their stockades, the people of the Greene family plant a few crops which live and die from dark to dark as do the "ponics." Their social order is ruled by a religion of twisted psychoanalysis, hideously hopeless, and they are haunted by the Giants and Outsiders who roam the wilds beyond their walls, and by dread of the supermen in "Forwards."

Then a priest discovers a plan of the ship and gathers a group of malcontents and mavericks to make their way through the jungles of the Deadways and the holdings of Forwards, to find a legendary captain in a mythical control room, and force him to bring the Ship to its final goal. The mysteries grow as fast as they unravel—the giants appear and disappear—intelligent rats use telepathic rabbits and moths to track their prey —warfare breaks out and holocaust overtakes the Ship.

John Wyndham—John Christopher —Arthur Clarke—Eric Frank Russell —all are English writers whose names are as well known in American science fiction as those of United States bred writers. They have picked up the batons dropped by Wells and Doyle, and won a place in the Hall of Fame of international science fiction. Brian Aldiss is earning himself a place at the end of the row.

PLAGUE SHIP, by Andrew North
VOODOO PLANET, by Andrew North.
Ace Books No. D-345. 1959. 178 + 78 pp. 35¢.

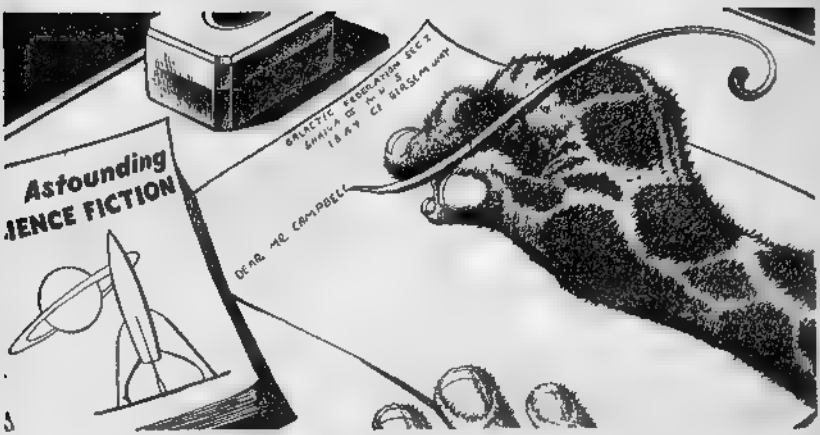
I don't think there is anyone writing today who has the talent for science-fiction adventure that Alice Mary Norton, alias Andre Norton, alias Andrew North, shows every time she sits down at the typewriter. She is living proof that the "sense of wonder" of the early days needn't be relegated to the golden past, that action and melodrama can be woven into a plot without becoming ridiculous, and that SF can be fun

"Plague Ship," the longer portion of this Ace Double, is a reprint of the Gnome hardback of 1956. It was the second in the Dane Thorsen series, taking the Free Traders to the world of Sargol, with its cat people, then striking down the crew of the *Solar Queen* with a mysterious plague.

"Voodoo Planet" is a sequel, and third in the series—really only a long novelette. Thorsen is really not much more than a bystander this time, though he sees his share of action The real hero is the ship's medic, Tau, who has made a study of magic on the many worlds where the *Solar Queen* has traded, and who is called upon to fight magic with magic on Khatka, a world colonized by African refugees. The cover by Emsh, incidentally, has nothing whatever to do with the story: maybe Tau is going to pay a return visit to Khatka some day. I wish the yarn were longer.

THE END

BRASS TACKS



Dear Mr. Campbell:

How naive can you get?

In your editorial for April, 1959, you ask the question: "Why must psionics — Magic — be suppressed? Why has it been advantageous to operate a high-power jamming transmitter to make psi talents useless? There's a *real* reason, and we don't know what it is."

There's a very real reason, and you gave it to us in your editorial for January, 1959. Remember? "I have seen records of psi machines used to destroy insect pests in crops . . . Some ninety farms in all were treated . . . At the end of the season their figures showed that ninety-five per cent of the Japanese beetles on the test plots had been killed . . . by treatment of photographs, at distances ranging from one hundred twenty feet to five hundred miles."

Yes, that's reason enough

I do not know just how many pounds of Japanese beetles were killed on those ninety farms, but I feel quite certain that, if all those death-dealing "treatments" had been concentrated on a single mammal weighing about two hundred pounds —something nasty might have happened.

You did not describe the treat-

ment. One would suppose that it consisted of a symbolic dusting with some powerful insecticide. A few pinches of the stuff would do—and would do as much murder as several tons of the same poison applied directly to the fields. Just as a tiny pin prick in a wax image will do the work of a sword thrust.

It is this magnifying or multiplying power of Magic that the scientists of the eighteenth and nineteenth centuries—and the prosaically-minded of all ages—most boggle at. But we, who can destroy a great city merely by banging together two small chunks of metal, are not so easily put off the track. Nevertheless, let us remember this prime fact of Magic: it multiplies tiny causes into great effects.

And, by doing so, it also makes the world a much more dangerous place to live in.

Look at the problem from the point of view of a Japanese beetle. Those photographs of the ninety farms were taken, one would suppose, from the air, and one could not pick out an individual beetle in any of them, even with the aid of an electron microscope. But were the poor beetles safe in their invisibility and anonymity? Not at all!

So somebody takes an aerial photo of a great city, and dusts it with radioactive powder, or with the germs of yellow fever, or—better still—smuggles it into the target area of the next bomb test. A pretty picture to contemplate.

Or go a bit higher. A sputnik with an automatic camera can obtain a photograph of a whole continent, or can cover a whole hemisphere with three or four overlapping photographs.

It was a jolly good thing for your friends that the State Department of Agriculture could so easily convince themselves it was all a practical joke in bad taste. Any government that gets an inkling of the fact that Magic really works will be forced to revive certain obsolete laws, with the appropriate penalties attached, and make them retroactive. Then the fat will be in the fire—but literally.

Does this mean we must burn our grimoires, break our wands, and renounce the study of Magic? We should, perhaps, but, alas, we cannot. We are hooked. It is impossible for thinking creatures in this age to slam shut a door that is just beginning to open and already reveals such tremendous vistas. Besides, if we didn't do it, other people would—other people with fewer scruples.

But before we dash headlong through that door we had best arm ourselves against the limitless dangers that lurk in those vistas. And how shall we do that?

The philosophers and scientists of the last two centuries defended themselves against the powers of Magic by a sturdy disbelief in said powers. It worked, too. It still works to a great extent, though growing visibly weaker. But, naturally, this defense is not possible for us.

People of an earlier day fought magic with magic. The religion of

an ancient city-state was an elaborately-organized magic to protect the citizens against hostile enchantments. The state-priests called upon — or created? — various Powers whom they controlled by means of images, ceremonial bloodshed, fasting, magical dances, and in many cases by ceremonial coition—or equally ceremonial continence. And the religion really did what was expected of it. Or, at any rate, those cities with the most complicated religious observances were always the greatest and most civilized.

This defense is not available nowadays, but perhaps we could evolve something like it. A very elaborate, highly-polished psionic machine, housed in an impressively-solid building and served by a college of professors in black gowns and miter-board caps, would suit the present age far better than any attempt to revive the worship of Zeus or Athene or Aphrodite

But that is a project for the future, and we—meaning you and I—need protection right now.

Here's how the Hypnotists do it. In the first place, they cheerfully admit that hypnotism is nothing mysterious, it is all done by tiring the optic nerve. Which is nonsense, as anyone who has ever watched a genuine hypnotist at work can see at a glance, but it is nice, easy, consoling nonsense. So let us say we Magicians get our effects by means of a psionic ray which taps the Sphere of Energy which lies just above the atmosphere. Everybody who has read anything about artificial satellites knows all about that Sphere of Energy—or *thinks* he does, which is equally to the purpose. Then we must explain to everybody that the psionic ray is incapable of injuring any living creature.

A flat lie? No, not at all. It is every bit as true as the well-established fact that a person cannot be hypnotized into doing anything against his principles.

How did the hypnotists prove that well-established fact? Merely by repeating it over and over and over again. To be perfectly truthful, they did not prove the fact at all; they *created* it. It was not a fact to begin with; it became a fact because it was repeated so often and with so much solemn assurance. It is not a statement about the nature of hypnotism; it is in itself an hypnotic command, as binding upon the great majority of hypnotists as it is upon their clients!

So, let us tell everybody that the psionic ray is incapable of harming any living thing. Let us repeat it and repeat it and repeat it—and in a short time it will be no longer a mere taradiddle but a magic formula that will actually prevent a great amount of harm—and which will go far to make us Magicians acceptable in polite society.

But, between ourselves, let us never quite forget that the psionic ray, the Sphere of Energy, and the Assurance of Utter and Absolute Harmlessness are not quite as genuine as Santa Claus.—E. M. Johnston,

637 Hurontario Street, Collingwood, Ontario, Canada.

The worst part of Magic is that it is Undemocratic. It isn't the mass of Japanese beetles that must be considered—but the total mind-quantity involved. Perhaps ten thousand Japanese beetles equal one moron; how many would equal one genius?

Dear Mr. Campbell:

Your editorial "Holes" in the April issue ended with some thought-provoking questions. After mulling them over at length, I arrived at some possible answers which I would like to pass on.

"What is the Top King-point that lies hidden behind that motto Psionics shall not pass?" Here are a few possible King-points.

The structure of science rests on the scientific method. Its basis is the desire to know. The desire to know leads to the pursuit of knowledge. This is a very difficult, discouraging process requiring years of repeated experimentation, painstaking compilation and analysis of data, and frequent dead-ends. The pursuit of knowledge sometimes leads to the acquisition of the knowledge desired If it is acquired, the next logical step is its application to human needs through the applied branch of science—engineering.

I will now attempt to compare the structure of psi—from what little I know about it!—with that of science.

The desire to know or to do may or may not be present in psi phenomena. The water dowser wants to know where the water is located, the witch doctor wants to put on a hex, but many recorded cases of psi seem to simply happen without conscious volition on the part of the people involved

The dowser walks with his rods, the shaman sings his songs, and *they often get their tangible results without the blood, sweat and tears which the scientist must sacrifice.* Although formal systems of magic involve the use of elaborate spells, incantations and rituals, these things are simple compared with the years of labor a scientist must spend to uncover a single fact about the natural world.

Psi eliminates or drastically simplifies the most grueling steps of the scientific method—the pursuit of knowledge and its application. Science may not want these steps eliminated for the same reason that a skilled primitive woodcarver may be horrified by an electric jigsaw. *A triumph for psi would be a triumph for what science considers laziness*

Science presumes the existence of a law-abiding universe. Psi is apparently lawless, OR it conforms to laws not presently known to science. *A triumph for psi might be a triumph for lawlessness.*

Psi in its various forms often tends to blame its failures on anyone or anything except the practitioner: "The spirits are unwilling." "An unbeliever is present." "The stars are

not in favorable positions." The scientist must carry the full blame for his failures and spend countless hours searching for the whys thereof. *To the scientist, a triumph for psi may appear to be a triumph for irresponsibility.*

Painstaking work, a law-abiding universe, and scientific responsibility are all King-points to most scientists.

"Our culture, unique in suppressing Magic, is also unique in achievement. Why?" What driving motive for technological achievement was gained by the suppression of magic?

When science began jerking the supernatural props from beneath the mind of western man, science told him, in effect: "There is no Santa Claus! Anything which you achieve without the hard work of your brain and the sweat of your hands is sheer coincidence. Your planet is not the center of the universe, and you are not God's special creation. If you want to be something special you must earn the privilege."

Western man had such an entrenched sense of his own superiority to both other life forms and other cultures that he was determined to hang onto it somehow. So he worked and earned the thing which we call Western Civilization.

Now for a question of my own. IS SCIENCE THE ONLY GROUP BEHIND THE JAMMING TRANSMITTER? Who else can profit psychologically or economically from the suppression of psi?

One theory regarding psi talent holds that it is restricted to a gifted few. Can our "Hyperdemocracy" tolerate a superman of any sort? Mr. Campbell says "No," and I agree. Supermen hit where it hurts the most —in the ego.

Another theory claims that psi talent is latent in everyone. Assume that we all have a bit of precognitive, telekinetic, teleportive or telepathic power. Who can profit from its suppression? Transportation, communications, advertising, espionage, counter-espionage, gambling, crime, politics, diplomacy to name a few. Not all these activities are malignant *per se,* but widespread use of psi power could be disastrous for all of them.

Lest the previous paragraph seem openly accusatory—which it isn't—rather than purely speculative—which it is—allow me to mention a recent act of singular courage by a member of the communications industry.

The Bell Laboratories announced a few months ago that they had begun research on telepathy with a view to determining its possible value in communications. To anyone familiar with Whyte's "The Organization Man," this is not as paradoxical as it sounds. According to Whyte, Bell and General Electric represent the two remaining citadels of truly creative research—rather than "Togetherness"—in the corporate field.

One can only hope that if Bell's research confirms the second theory they will remain true to form and have the courage to announce: "Yes,

Virginia, there *is* a Santa Claus."—Mrs. Bob Sexton, Box 566, Devine, Texas.

A worm uses biochemistry no learned Ph.D. can match. Does that make chemistry something free of hard work? Morons have displayed psi powers. What does that prove?

The Magi, who sincerely tried to study psi were unanimous about several things; that psi had laws, required years of self-disciplined study, and was hard work. Reliable psi appears to be just as rugged as science. There's still no Santa Claus!

Dear Mr. Campbell:

Noting by the July Astounding that devining rods aren't a dead subject, I thought that out of my relentless patience I would write you still another letter to see if you were interested in *this*. It's a bit old now, but it may be of some slight significance.

Shortly after the devining rod article appeared in ASF, I attended a meeting of the Indianapolis Science Fiction Society. There, Robert A. Madle and I, and various others, got to discussing the article and I constructed a set of devining rods by expert scientific process. I broke a coat hanger in two, bent the metal into tall L shapes, and stuck the short ends down into two beer bottles so they could swing freely.

Various fans there—in a rather unscientific party spirit, I admit—tried the rods to see if they could locate running water in the kitchen sink and bathroom. They seemed to, for practically everyone. Sometimes crossing, sometimes stretching out into one even line. I seemed to get the best results of anybody there. (I always secretly suspected I was a psionic superman).

Someone suggested that we were probably subconsciously tilting the bottles so the wires would assume the proper position. Someone else suggested that a surer test would be to bring the water to the rods and observe their reaction. As the best subject, I placed the rods in the bottles on a table and slid a bowl of water under them. As observed by at least a dozen people, the rods began transcribing a minute arc of three quarters of an inch each per second. They kept this up over two hours without ever being touched again. (Until we dismantled them to put the empty bottles in their case.)

Now, of course, it all might have been the perculiar tilt of the table—which seemed level—plus the delicate balance of such precision instruments, or a cross-current of air—which we couldn't detect—or heat conduction from one side of the room to the other

But these explanations, like all mundane explanations for psionic phenomenon, seem more unlikely, complex, co-incidental and fantastic than simply admitting a single unknown factor -abilities of the human mind outside known physical laws.—Jim Harmon, 427 E. 8th Street, Mt. Carmel, Illinois.

Whoops! Now I'm in the "I don't believe it!" group! The rods work when held by human operators; like the old pendulum gadget, they simply act as sensitive indicators of subconscious twisting by the operator. The rods aren't important—it's the operator who does it. The rods don't have any strange powers. The question is, was, and remains—how does the operator's subconscious know when to do the twisting?

I've tried mechanical mounts for the rods—nonhuman mounting—and I've never gotten any response. You're the first to report such an effect.

And so I am now in the "I don't believe it!" group!

Dear Mr. Campbell:

I was very interested in your June editorial, "Science is a Menace." It may be somewhat oversimplified, but it definitely presents an important point, one that you brought up before in your article for R. Bretnor's "Modern Science Fiction" (page 10). Also, a story along these lines, William T. Powers' "Allegory" (April 1953), discusses life in a culture composed entirely — almost — of chronosetting individuals.

But this story raised another point. An inventor who dared violate the Basic Precepts of Science by building an antigravity device was doubly punished: first, by declaring his invention impossible, therefore nonexistent, the most effective means of suppression, and second, by declaring him insane. Presumably, this was the fate of all other change-minded, chronoplastic individuals. Thus, it would seem that both scientific progress and the lack of it are a menace to certain groups of individuals within a society. Apparently we are forced to choose between benefiting the majority—by stopping scientific progress or holding it to a bare minimum—and benefiting a minority now and the race in the future.

This might get to be a very big problem Maybe one of your writers can find a solution to it.—Robert D. Leonard, Jr., 1630 Farragut, Chicago 40, Illinois.

What do you think the writers have been trying to do in their stories?!

Dear Mr. Campbell.

Just recently, I reread your March editorial, on the subject of the "Superman." It stimulated my thinking considerably and a few questions came to mind.

Is the "superman," by learning to think intuitively, "watching himself doing it," as you say, simply doing what comes naturally, doing what many more of us could do? Is he merely resisting the forces that tell a man, "You're stupid! You *don't* know. You can't prove you know. Et cetera.

When a child *knows* something, his adult companions tell him he's wrong and they "prove" it with

tricky logic. Most children eventually accept as a fact that these experienced adults must know better than they do. When they arrive at that point, they throw away their birthright to the possibility of being something "super" to the average adult today, and become like the rest, a person who is "comfortable" to have around, posing no threat to the "intelligence" of his associates. Can we not, in raising our children, help them in many ways, by supplying them with sufficient data and encouragment to resist these forces—and especially by not being one of these forces ourselves?

Maybe it isn't this way at all—but it is interesting to think about it, and this kind of thinking can't help but lead to deeper implications. To get practical about it, I have another question: Can a man who has shut down his own intuitive abilities relearn to use them?

It would probably turn out that some could and some couldn't. For the sake of those who could, let's consider this a bit. You remember the cute saying:

First Bird: "I am a watchbird, watching *you*."

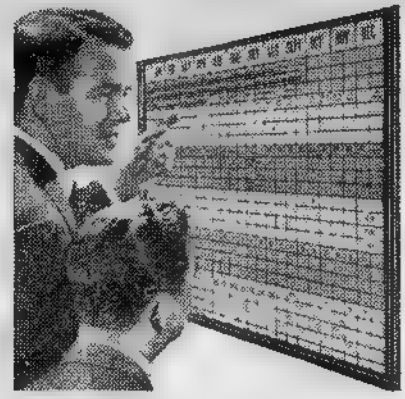
Second Bird: "I am a watchbird, watching a watchbird, watching you."

Well, when it comes to beings, man, superman, and otherwise, it seems to me that there must be higher and higher awarenesses, some of which are still sound asleep, as far as we are concerned. As we progress, we develop through a series of steps such as: a creature who can sense something, can sense specifically, can be aware of sensing, can think conceptually, can be aware of thinking conceptually, can think intuitively, can be aware of thinking intuitively et cetera. (You may have a different way of lining up the steps. They are not presented as a basis for argument, but just to indicate that there is a progression in human development. The specific steps, whatever they are, are greatly intertwined and overlapped.

At each step, something that is potential, but not yet awakened, must wake up. At each point, the creature says, "I," and means the part of himself of which he is then aware. This part should be ever developing, increasing, growing. A greater and greater portion of our beingness should be waking up all the time. Instead, our culture says, "Go to sleep, then you'll feel no pain! Go to sleep—you're too dangerous to me while you're awake. Go to sleep—you're too much trouble to me while you're awake." (Watch a small child, trying to get his questions answered. See the treatment he gets!)

We could all watch ourselves for a while and see just what *we* do in various circumstances. If you've never tried this, you're in for an astonishing adventure. Your eyes will blink in amazement and you will say, "Is this really me? Do I do these things?" Just try it and see.

You are part of the human race. *Everything* you do affects the culture in *some* way. Add the actions of thousands of others somewhat like you



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and things tend to go along pretty much as they *have* been going, because they are being continually reinforced. Break into this pattern and try to change it and our world will change a wee bit because of your action. But actions and thoughts are contagious. One person's efforts, added to that of another and another, can build up into a mighty wave. And a wave of sufficient force can break down even those castles built in the sands of time.—Florence Worrell, 13010 Pierce Road, Saratoga, California.

Each of us shares a markedly different personality facet in different situations; we're quite conscious of those personality patterns. But—what selects which of the available personalities is to be used? That level we are not conscious of, although we use it regularly. A schizophrenic psychotic seems to be an individual in whom that selection mechanism has gotten jammed in one or a few positions.

Dear John:

Urgent correction to Schuyler Miller's "Reference Library" for June. I never suggested sending some "nice girls" into space as astronauts' companions; the responsibility is Bob Richardson's.

You can quote me as recommending not nice girls, but naughty ones—Arthur C Clarke

"Naughty but nice" maybe?

THE END

(*Continued from page 7*)
current heats it, and the hotter it gets and . . .

They're working, now on some new families of synthetic plastics. It's work-in-progress, but they've already got some that are pretty fair plastic materials at some rather wildly improbable temperatures Making plastic frying pans would be a snap with some of these new ones; plastic melting pots for solder, and even zinc and aluminum, are "in process."

The framework of the molecules of these plastics is *not* carbon; sure, they contain some carbon-hydrogen groups, but the central framework of the polymer is not carbon. In some it's aluminum oxide! In some it's boron, in others an unexpected addition to the list of "organic" complex-makers—phosphorus

So . . . what's "organic chemistry"? It no longer is limited to organisms, certainly. And now it isn't even limited to carbon-based molecules! Because, surely, the field of plastics, elastomers, and the like belongs in the area we mean—in a rather vague semantics!—by "organic chemistry."

The field of solid-state physics is hardly a decade old— but it's explosive growth has been so rapid that even men in the field are unable to keep track of the whole picture

The real breakthrough came with the Bell Labs work that led to the discovery of the transistor, and the subsequent Bell Labs work—forced by the demands of transistor technology for ultra-ultra pure materials —on techniques of super-refining. The Manhattan Project has had to do a lot of work on really purifying materials, to get their nuclear reactors to react at all—but "nuclear reactor grade" zirconium is only 99.999999% Zr Some surprising things have been found as really pure materials have been developed.

The transistors started with germanium as their semiconductor material. Silicon, also, offered possibilities, but was harder to work with, and had somwhat less desirable electron-ring structure, for critical amplifier work. But silicon, now, is in tremendous fashion; the silicon diode power rectifiers, for instance, are making entirely new concepts of equipment design possible. Hundreds of amperes at hundreds of volts can be rectified by a silicon button the size of a coat button. For one thing, it makes possible generators that don't have either commutators or slip-rings.

Then there are the solar batteries —and some vague hints that energy-storage devices may come from the development of this field that will make possible storage of *real* quantities of electrical energy. Not chemically, in storage batteries, nor as electrostatic fields in condensers, but physically in a solidstate system based on electron-displacement.

But the semiconductor field is spreading in other directions too; not only are germanium and silicon devices being developed for new uses, but also new semiconductor materials are being synthesized. Gallium arsenide, is one example Not elemental

crystals, but chemical compounds.

It's long been the lovely idea of science-fictioneers to have the hero find an alien device, study it, learn how it functions, and duplicate it—with improvements—in a matter of months.

The scientists of the Earth, united in an all-out attack on the problem, in 1920 could not have gotten anywhere whatsoever with a modern electronic controls system of the advanced-but-standard types today. Transistors work by having precisely the right quantities of the right impurities distributed just *so*. I'd hate to think of a 1920 chemist trying to detect the impurities, their quantities, or the distribution.

Worse, the electrical nature of the computer-control system would be evident to anyone, but a physicist of 1920 would be helpless to get anywhere with it. You think, maybe, he could deduce the function from the structure? Hah! The philosophical concepts underlying modern computer programming, information theory, and cybernetics hadn't been developed—and if you think they're obvious, try developing 'em from a standing start! Physicists of 1920 didn't think in terms of pulse-system controls, and didn't think in terms of gating circuits that conducted only during a very specifically determined five microsecond period, and were simply short circuits the rest of the time.

You've got to have some vague notion of the purpose of a unit before the structure of the thing makes any sense at all. Lacking the philosophical concepts that have developed around computer-control systems, the structure, however carefully you examined it, would remain baffling, frustrating, and meaningless.

Of course, given a complete instruction manual, with full technical explanation, they could learn the concepts, and understand it readily enough. But an instruction manual doesn't tell you how to produce a 2N467 transistor—it just tells you what it's there for, and what characteristic misbehavior develops if it needs replacement.

A 1930 physicist wouldn't be much better off.

Even a 1940 physicist would be completely helpless in any practical sense; he might recognize that this was a super-development of some of the new ideas that were beginning to float around. (And he'd probably guess it as being a century or more in the future, too!)

The further, very practical fact is that a 1959 physicist, picked at random, would be just as thoroughly helpless as the 1920 physicist. As of 1920, the field of physics was still generalized enough so that "physicist" meant one who had a workable, useful knowledge, if not a detailed knowledge, of the whole field of physics. Today, as Isaac Asimov pointed out in his "Sound of Panting" article, no scientist can keep up with all the work being done in his generalized field—or, even, in his own specialized segment of the field.

The resultant breakdown of communication in science is serious at the technical level, and major efforts are being directed toward trying to overcome the problem.

But they're being undertaken at the *technical* level. What it amounts to is that efforts are being made to see to it that plastics technicians will be able to get some idea of the work being done in plastics, the highly technical special work presented in the specialized journal articles.

But who's seeing to it that geologists have some idea of the work being done on borane high-temperature plastics? Or that control-circuit logicians know that psychologists are struggling with a problem the cybernetics boys cracked two years ago?

Where can the generally-interested technical man find out what progress the War against Ignorance is making on more than his own local front?

Recognize this: a 1959 cybernetician is, usually, a 1940 chemist, while a 1959 chemist is a 1940 physicist. And more than that, the cybernetician is a sophomore-level 1940-style chemist; that's the last time he had any extensive contact with the field.

Furthermore, they don't know the language of the second field; undergraduate courses are taught in English, with very little of the basic technicalese of the particular field.

These factors combine to discourage the chemist from trying to discuss his field with the cybernetician, and vice versa; the result is that neither man has a chance to get even the generalized view of the other fellow's field he needs, wants and could have.

One of the major functions of science-fiction has been that of speculating on what *could be* done—not what *will* be, or *can-now* be done. We speculated on rocketships before they could be built—on atomic energy devices before the needed knowledge was completely available.

Fundamental research must, necessarily, be basically a nonlogical process. If the researcher can predict what he is going to discover, and explain why it is worth discovering, and express the value to be gained . . . it isn't fundamental research. It's engineering research. If he can already predict, then it's engineering, not fundamental.

If he can give good, sound, well-founded reasons for doing what he intends to do—it should be done in an engineering laboratory.

If he has only poorly formulated half-describable hunches, inadequate data, a complete lack of evidence of the validity of his speculative idea, and a large mass of high-intensity enthusiasm to work with—that's fundamental research. If he can explain the thing clearly before he starts, then there's no need to start, he's already got the answer.

The two greatest lines of fundamental research are "I wonder what would happen if . . ." and "There ought to be *some* way to. . . ." whether they're consciously so expressed or not.

Fundamental research doesn't require exact or detailed knowledge; it frequently works magnificently starting from a basis of misunderstanding, as a matter of fact. What it needs is a broad, generalized understanding of the general shape of a field of study; that's a great help in finding the holes in the field that haven't been investigated adequately. (This leads to the child's sometimes infuriating ability to come up with, "Why don't you just . . ." when adults are struggling with a problem, and point out an obvious, but overlooked, simple solution. As in the classic case of a big truck carrying a huge steel tank that got itself and load well and immovably jammed under a slightly too low bridge. There were discussions as to whether to cut three inches off the bridge girder, or cut away a section of the steel tank, when an interested boy suggested they let the air out of the truck tires. The men saw the truck-and-load were stuck at the top; the boy saw they were stuck at top *and bottom*).

But there's far too little cross-education among practicing scientists.

Beginning very shortly, Astounding is going to add at least sixteen pages of coated stock; it is not yet determined whether it will be sixteen, or possibly thirty-two pages. The additional pages will be devoted to straight science articles; the coated —"slick"—paper will allow us to run good, clear photographs, a factor necessary to science articles, though completely an economic waste for fiction material.

The articles I want to run will be of the nature I've described—making the frontier advances of one field of science understandable to practicing specialists in other fields. There exists no source for such material—so I'm asking you readers to help supply the articles I need. The job can be done, needs doing—and it is my hunch that the readership of this magazine includes the types of men best able to do just what needs doing.

The articles should run about five thousand words; photographic illustration can, as I say, be used. We pay three cents a word for material, plus five dollars per photograph.

Experience indicates that what readers enjoy in an article is something that presents the headaches in the other fellow's field—a realistic picture of the thing, not a "Chemistry is Lovely!" sort of approach. What are the problems you're up against? Why? What makes the problem seem worth cracking? What are you trying to accomplish? What methods of cracking it have been tried, and why didn't they work? What line of approach is now on the fire?

I'm not asking for classified information; I'm asking for the things that "everybody knows about". . . in your special field. Everybody in the titanium metallurgy field knows about the peculiarly cantankerous behavior of the metal—but practically no one outside of the field does. Sure it's light and strong and heat resistant, and pratically incorrodable. Did

you know, though, that it "galls" on the slightest provocation, so that a titanium shaft running in a titanium bearing will seize almost immediately, no matter what lubrication you try? And that it ruins the edge of even a carballoy tool in a remarkable hurry? That a flat rolled titanium sheet, slit into strips, suddenly displays hitherto hidden tensions, yielding a strip that wriggles, writhes, and cavorts generally? That spinning titanium is somewhat like spinning a roulette wheel—you *might* get what you want?

Why . . . everybody in the titanium field knows *that!*

Most people don't work in the titanium field, and don't know it. I'd like a real article on the titanium problem . . .

Almost any namable specialty has some "everybody knows" problem that practically nobody knows about —and that is fascinating to any technically-minded problem-solver.

They're frontier-research problems. They're not secret. They do allow of some speculation as to how they might be solved, and the "could be" results of an adequate solution. Titanium is one of the Earth's most abundant elements; silicon is the most abundant solid element in the Earth's crust. Yet see how very recently we've learned to use them at all! Why?

The articles should be written in English, not technicalese; you're trying to communicate to a man who's just as competent and just as highly educated as you are yourself—but you and he branched off, in your educational development, back about the sophomore year of college. At that time, you both spoke the same language; English. You're *not* however, writing for kids; don't write *down* to the audience, write *across*—across that gap that's been widening since you specialized in your field, and he in his.

Most of all, we want articles that give us a chance to see what the other fellow in the War against Ignorance is doing on his front—what his problems are, and what progress he's making. And these aren't to be technical-journal type articles; they're not going to be technical reports. Any researcher worth his salt does research because there's nothing else in the world that's half so much soul-satisfying fun . . . for him. In the words of the song, it may be a headache, but it never is a bore.

Let the fact that it is fun percolate into your discussion; these aren't professional-prestige pieces, but bull-session discussions for the interest of other researchers. We certainly can't offer you increased status—but like any good bull session, we can offer beer, pretzels, and cold cuts. About one hundred seventy-five dollars per article. You can't make a living on it —we don't want science-reporters, but reporting scientists—but if you're hankering for a new camera, a new hi-fi, some more cash for your vacation, or for Christmas . . . there we can be of great mutual assistance.

Because I need articles.

THE EDITOR.

WHY CAN'T YOU WRITE?

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SO MANY people with the "germ" of writing in them simply can't get started. They suffer from inertia. Or they set up imaginary barriers to taking the first step.

Many are convinced that the field is confined to persons gifted with a genius for writing.

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Not only do these thousands of men and women produce most of the fiction published, but countless articles on science fiction, business, sports, hobbies, social matters, travel, local, club and church activities, etc., as well.

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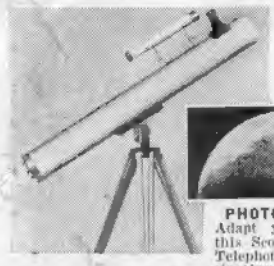

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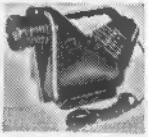

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